SLV-E325EG/E475EG/E570EE/E570EG/E715B/E717VC/E720B/E720BZ/E720EE/ E720EG/E720EX/E720NC/E720NP/E720UX/E720VC/E720VP/E725NC

RMT-V197/V197A/V197B/V198/V198A/V198K/V198J/V199/V199A

SERVICE MANUAL

East European Model
Greek Model
SLV-E325EG/E475EG/E570EE/
E570EG/E720EE/E720EG
French Model
SLV-E715B/E720B/E720BZ
Irish Model
SLV-E720EX
North European Model
SLV-E720NC/E725NC
Spanish Model
SLV-E720NP
UK Model
SLV-E720UX
Germany Model
SLV-E717VC/E720VC
Austrian Model
Germany Model
SLV-E720VP

Photo : SLV-E720B

VHS

H MECHANISM

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS Ⅳ for MECHANICAL ADJUSTMENTS. (9-973-623-11)**

SPECIFICATIONS

System

Channel coverage
  PAL (B/G)
  VHF E2 to E12
  VHF Italian channels A to H
  UHF E21 to E69
  CATV S01 to S05, S1 to S20
  HYPER S21 to S41
RF output signal
  UHF channels 21 to 69
Aerial out
  75-ohm asymmetrical aerial socket

Inputs and outputs

⊕ LINE-1 (TV)
  LIGNE-1 (TV)
  21-pin
  Video input: pin 20
  Audio input: pins 2 and 6
  Video output: pin 19
  Audio output: pins 1 and 3

⊖ LINE-2 IN/ENTREE LIGNE-2 (SLV-E570EG/E720EX/E720NC/E720UX/E720VP)
  DECODER/LINE-2 IN
  DECODEUR/ENTREE LIGNE-2 (SLV-E715B/E717VC/E720B/E720BZ/E720NP/E720VC)
  21-pin
  Video input: pin 20
  Audio input: pins 2 and 6
  Video output: (C+) pin 19 (SLV-E715B/E717VC/E720B/E720BZ/E720NP/E720VC)
  Audio output: (C+) pins 1 and 3 (SLV-E715B/E717VC/E720B/E720BZ/E720NP/E720VC)
AUDIO OUT
  Phono jack (2)
  Rated output level: 327 mVrms
  Load impedance: 47 kilohms
  Output impedance: less than 10 kilohms

General

Power requirements
  220 – 240 V AC, 50 Hz
Power consumption
  23 W
Operating temperature
  5°C to 40°C
Storage temperature
  –20°C to 60°C
Dimensions
  Approx. 430 x 109 x 304 mm (w/h/d)
  including projecting parts and controls
Mass
  Approx. 4.8 kg

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)

Design and specifications are subject to change without notice.

VIDEO CASSETTE RECORDER

MICROFILM

SONY®

[DIFFERENT SPECIFICATIONS]

SPECIFICATIONS	MODEL	SLV-E325EG	SLV-E475EG	SLV-E570EE	SLV-E570EG	SLV-E715B	SLV-E717VC
VIDEO SYSTEM	PAL	REC/PB	REC/PB	REC/PB	REC/PB	REC/PB	REC/PB
	SECAM	-	-	-	-	REC/PB	-
	MESECAM	REC/PB	REC/PB	REC/PB	REC/PB	PB	-
AUDIO		MONO	MONO	MONO	MONO	HiFi	HiFi
TUNER	SYSTEM 1	BG	BG	BG	BG	L-NICAM	BG-ZWEI
	SYSTEM 2	DK	DK	DK	DK	BG	
RF MOD. SYSTEM		K/G	K/G	K/G	K/G	L	G
IN/OUT	2nd SCART	-	-	-	IN	C+/IN	C+/IN
	REAR AUDIO OUT	-	-	-	-	O	O
	FRONT LINE IN	-	-	O	O	-	-
INDEX SEARCH		-	-	O	O	O	O
VPS/PDC		O	O	-	O	O	O
ShowView/Video Plus		ShowView	-	-	ShowView	ShowView	ShowView
APPEARANCE	FRONT	Direct key	Direct key	Dual Mode Shuttle	Dual Mode Shuttle	Direct key	Direct key
	BODY COLOR	BLACK	BLACK	BLACK	BLACK	TITAN	TITAN
REMOTE COMMANDER		RMT-V198A	RMT-V198	RMT-V199	RMT-V199A	RMT-V198K	RMT-V198J

SPECIFICATIONS	MODEL	SLV-E720B	SLV-E720BZ	SLV-E720EE	SLV-E720EG	SLV-E720EX	SLV-E720NC
VIDEO SYSTEM	PAL	REC/PB	REC/PB	REC/PB	REC/PB	REC/PB	REC/PB
	SECAM	REC/PB	REC/PB	-	-	-	-
	MESECAM	PB	PB	REC/PB	REC/PB	-	-
AUDIO		HiFi	HiFi	HiFi	HiFi	HiFi	HiFi
TUNER	SYSTEM 1	L-NICAM	L-NICAM	BG	BG-ZWEI	I-NICAM	BG-ZWEI/NICAM
	SYSTEM 2	BG	BG-ZWEI	DK	DK-ZWEI		
RF MOD. SYSTEM		L	L	K/G	K/G	I	G
IN/OUT	2nd SCART	C+/IN	C+/IN	-	-	IN	IN
	REAR AUDIO OUT	O	O	O	O	O	O
	FRONT LINE IN	-	-	-	-	-	-
INDEX SEARCH		O	O	O	O	O	O
VPS/PDC		O	O	-	O	O	O
ShowView/Video Plus		ShowView	ShowView	-	ShowView	Video Plus	ShowView
APPEARANCE	FRONT	Direct key	Direct key	Direct key	Direct key	Direct key	Direct key
	BODY COLOR	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
REMOTE COMMANDER		RMT-V197B	RMT-V197B	RMT-V198	RMT-V197	RMT-V197A	RMT-V197

SPECIFICATIONS	MODEL	SLV-E720NP	SLV-E720UX	SLV-E720VC	SLV-E720VP	SLV-E725NC
VIDEO SYSTEM	PAL	REC/PB	REC/PB	REC/PB	REC/PB	REC/PB
	SECAM	-	-	-	-	-
	MESECAM	-	-	-	-	-
AUDIO		HiFi	HiFi	HiFi	HiFi	HiFi
TUNER	SYSTEM 1	BG-ZWEI/NICAM	I-NICAM	BG-ZWEI	BG-ZWEI	BG-ZWEI/NICAM
	SYSTEM 2		(UHF only)			
RF MOD. SYSTEM		G	I	G	G	G
IN/OUT	2nd SCART	C+/IN	IN	C+/IN	IN	IN
	REAR AUDIO OUT	O	O	O	O	O
	FRONT LINE IN	-	-	-	-	-
INDEX SEARCH		O	O	O	O	O
VPS/PDC		O	O	O	O	O
ShowView/Video Plus		ShowView	Video Plus	ShowView	ShowView	ShowView
APPEARANCE	FRONT	Direct key	Direct key	Direct key	Direct key	Direct key
	BODY COLOR	BLACK	BLACK	BLACK	BLACK	TITAN
REMOTE COMMANDER		RMT-V197	RMT-V197A	RMT-V197	RMT-V197	RMT-V197

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, par-ticularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering

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SERVICE NOTE

1. HOW TO RETURN THE PINCH ROLLER, GUIDE ROLLER AND ELEVATOR CAM TO STOP MODE

1) Remove the VHS MD assembly from the machine. (Refer to section 2-4. Removal.)
2) Rotate the worm gear-1 of the cam motor beneath the MD assembly in the direction arrow Ⓐ using a screw driver tip.

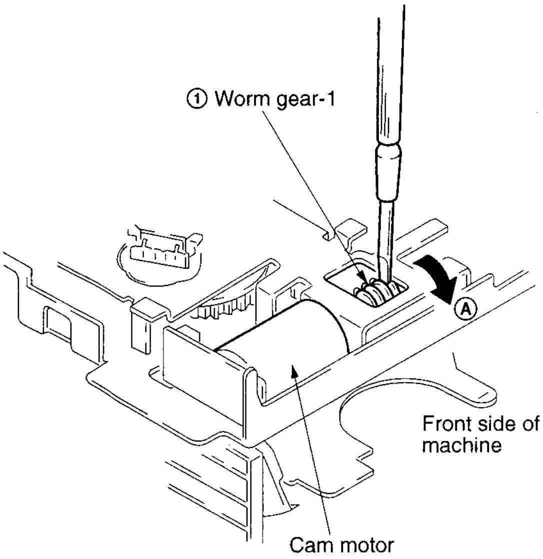

① Worm gear-1
Ⓐ
Front side of the machine
Cam motor

Fig. 1

2. HOW TO RETURN A TAPE INTO CASSETTE HALF

A tape can be rewound into a cassette half by rotating the flywheel-1 of the capstan motor in the direction of Ⓐ with hand.

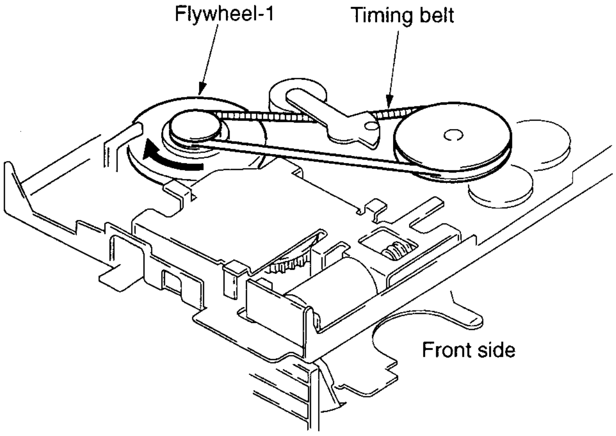

Flywheel-1
Timing belt
Front side

Fig. 2

3. HOW TO REMOVE A CASSETTE FROM A MACHINE IF A CASSETTE IS LEFT IN A MACHINE IN TROUBLE

Execute the section 2, and keep rotating the flywheel-1.

When executing section 1 to 3, take care that a tape slack should not be caught by a mechanism or a tape should not be damaged.

4. HOW TO REMOVE DRUM ASSEMBLY

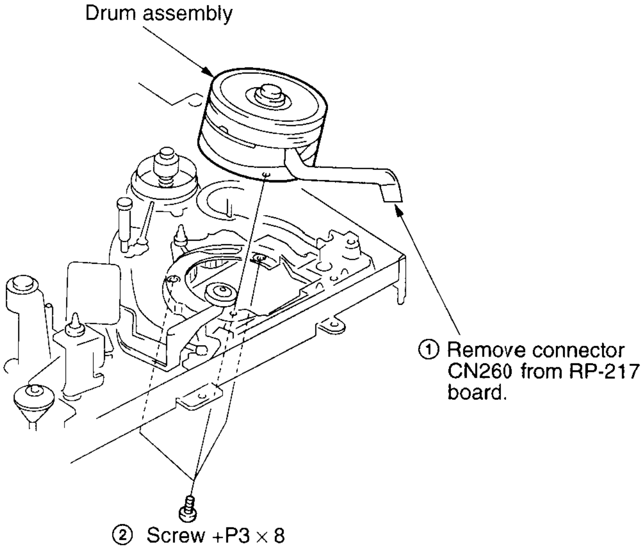

Drum assembly
① Remove connector CN260 from RP-217 board.
② Screw +P3 × 8

Fig. 3

SLV-E325EG/E475EG/E570EE/E570EG/E715B/E717VC/E720B/E720BZ/E720EE/E720EG/E720EX/E720NC/E720NP/E720UX/E720VC/E720VP/E725NC

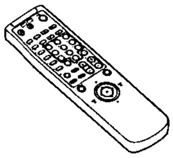
SECTION 1
GENERAL

This section is extracted from instruction manual.

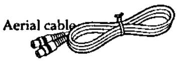
Step 1
Unpacking

Check that you have received the following items with the VCR:

- Remote commander



- Aerial cable



- R6 (size AA) batteries

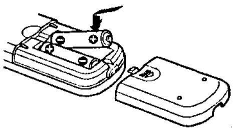
Checking your model name

The instructions in this manual are for the 6 models : SLV-E720NC, E720NP, E720VC, E720VP, E725NP and E717VC. Check your model number by looking at the rear panel of your VCR. The SLV-E720NP is the model used for illustration purposes. Any difference in operation is clearly indicated in the text, for example, "SLV-E720VC only."

Step 2
Setting up the remote commander

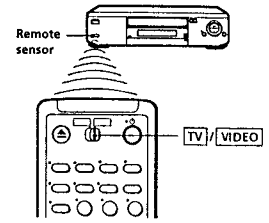
Inserting the batteries

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV.



Remote sensor
TV/VIDEO

To operate	Set TV/VIDEO to
the VCR	VIDEO and point at the remote sensor on the VCR
a Sony TV	TV and point at the remote sensor on the TV

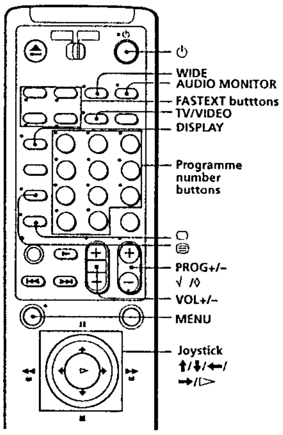
Using the Joystick

Mode	Operation	Action
Playback	Push up/down/left/right ↑/↓/←/→	PAUSE/STOP/FF/REW
	Press	PLAY
Menu	Push up/down/left/right ↑/↓/←/→	Select in menu
	Press	EXECUTE

Notes
- In normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use together different types of batteries.

continued

Step 2 : Setting up the remote commander (continued)

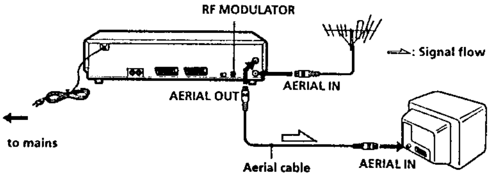


⏻
WIDE
AUDIO MONITOR
FASTEXT butttons
TV/VIDEO
DISPLAY
Programme number buttons
▢
⊜
PROG+/–
√ /0
VOL+/–
MENU
Joystick ↑/↓/←/→/▷

TV control buttons

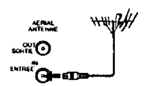
To	Press
Turn the TV into standby or active mode	⏻ (on/standby)
Select an input source of the TV either from aerial or from line in	TV/VIDEO
Select the programme position of the TV	Programme number buttons PROG +/–
Adjust the volume of the TV	VOL +/–
Switch to TV (Teletext off)	▢ (TV)
Switch to Teletext	⊜ (Teletext)
Select the sound	AUDIO MONITOR
Use FASTEXT	FASTEXT buttons
Call up on-screen display	DISPLAY
Change the Teletext page	√ /0
Operate TV menu options	MENU button / Joystick
Select screensize	WIDE

Step 3
Connecting the VCR



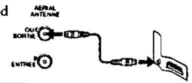
RF MODULATOR
: Signal flow
AERIAL IN
AERIAL OUT
to mains
Aerial cable
AERIAL IN

1 Disconnect the aerial cable from your TV and connect it to AERIAL IN on the rear panel of the VCR.



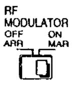
AERIAL ANTENNE
OUT SORTIE
IN ENTREE

2 Connect AERIAL OUT of the VCR and the aerial input of your TV using the supplied aerial cable.



AERIAL ANTENNE
OUT SORTIE
IN ENTREE

3 Make sure RF MODULATOR is set to ON.



RF MODULATOR
OFF ARR
ON MAR

4 Connect the mains lead to the mains

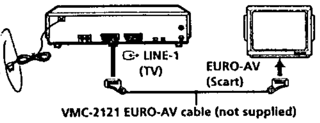
continued

Step 3 : Connecting the VCR (continued)

Additional connections

To a TV that has a EURO-AV (Scart) connector

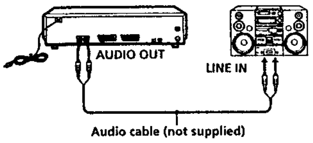
This additional connection improves picture and sound quality. Connect the TV as shown on the right. Whenever you want to watch the VCR picture, press TV/VIDEO to display the VTR indicator in the display window.



VMC-2121 EURO-AV cable (not supplied)

To a stereo system

You can improve sound quality by connecting a stereo system as shown on the right.



Audio cable (not supplied)

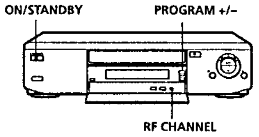
Tip

- If the TV is connected to the LINE-1 (TV) connector, setting the RF MODULATOR switch to OFF is recommended. In the OFF position, only the signal from the aerial is output through the AERIAL OUT connector.

Step 4

Tuning your TV to the VCR

If you have connected your VCR to the TV using a EURO-AV cable, skip this step.



1 ON/STANDBY

Press ON/STANDBY to turn on the VCR.

Make sure that the RF MODULATOR switch on the rear panel is set to ON.

2 RF CHANNEL

Press RF CHANNEL on the VCR.

The factory-preset RF channel appears in the display window.

The VCR signal is output through this channel to the TV.

3

Turn on your TV and select a programme position for the VCR picture.

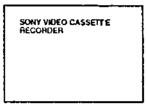
This channel (32) will now be referred to as the video channel.

4

Tune the TV to the same channel as the one shown in the display window so that the picture on the right appears on the TV screen (background must be green).

Refer to your TV manual for tuning instructions.

If the picture does not appear clearly, see "To obtain a clear picture from the VCR" on the next page.



SONY VIDEO CASSETTE RECORDER

continued

Step 4 : Tuning your TV to the VCR (continued)

5 RF CHANNEL

Press RF CHANNEL.

You have now tuned your TV to the VCR. From now on, whenever you want to play a tape, set the TV to the video channel.

To check if the TV tuning is correct

If a number on the TV screen changes each time you press PROGRAM+/- on the VCR, the TV tuning is correct.

To obtain a clear picture from the VCR

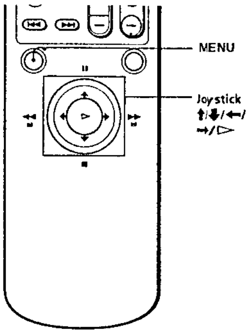
If the picture does not appear clearly in step 4 above, press PROGRAM +/- in step 4, so that another RF channel appears. Then tune the TV to the new RF channel until a clear picture appears.

Setups — Selecting a language

You can change the on-screen display language from the factory one.

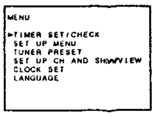
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



1 MENU

Press MENU

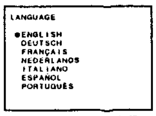


MENU

▸TIMER SET/CHECK
SET UP MENU
TUNER PRESET
SET UP CH AND SHOWVIEW
CLOCK SET
LANGUAGE

2

Push Joystick ↑ / ↓ to move the cursor (▸) to LANGUAGE and press Joystick.

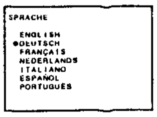


LANGUAGE

●ENGLISH
DEUTSCH
FRANÇAIS
NEDERLANDS
ITALIANO
ESPAÑOL
PORTUGUÊS

3

Push Joystick ↑/↓ to select the desired language with the dot (●), then press Joystick.



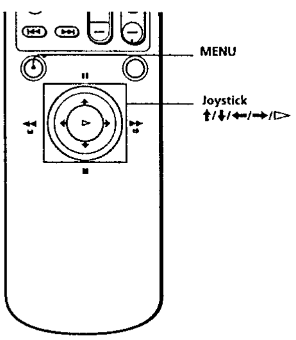
SPRACHE

ENGLISH
●DEUTSCH
FRANÇAIS
NEDERLANDS
ITALIANO
ESPAÑOL
PORTUGUÊS

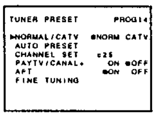
Setups — Presetting channels automatically

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to TUNER PRESET and press Joystick.

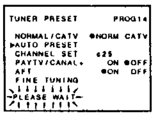


```
TUNER PRESET          PROG14

▶NORMAL/CATV    ●NORM CATV
 AUTO PRESET
 CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

2 Push Joystick ↑/↓ to move the cursor (▶) to AUTO PRESET, then press Joystick.

The AUTO TUNING PRESET starts searching and allocates the first channels found at the first positions.

If you want to change the order or to disable some channels, you can do it in the SET UP CH AND SHOWVIEW menu (page 16)



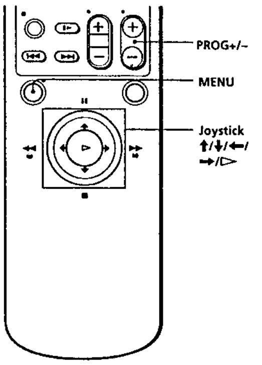
```
TUNER PRESET          PROG14

 NORMAL/CATV    ●NORM CATV
▶AUTO PRESET
 CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
-PLEASE WAIT-
```

Setups — Presetting channels manually

You can also preset one or several channels manually.

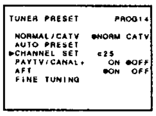
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to TUNER PRESET and press Joystick.

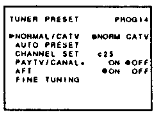
e.g. SLV-E720NP/E725NP/E720VC/E717VC



```
TUNER PRESET          PROG14

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

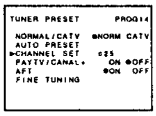
2 Push Joystick ↑/↓/←/→ to move the cursor (▶) to NORMAL/CATV, then select NORM.

To preset CATV channels, select CATV.



```
TUNER PRESET          PROG14

▶NORMAL/CATV    ●NORM CATV
 AUTO PRESET
 CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

3 Push Joystick ↑/↓ to move the cursor (▶) to CHANNEL SET.

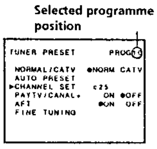


```
TUNER PRESET          PROG14

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

continued

Setups-Presetting channels manually (continued)

4 Press PROG +/– to select the programme position you want to set up.



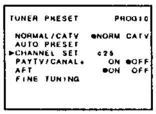
```
TUNER PRESET          PROG10

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

5 Push Joystick → to start tuning.

The VCR starts searching for a channel and displays the first one it finds on the TV screen. Push Joystick ←/→ repeatedly until the channel you want is displayed.

Channels are scanned in the following order:

- VHF E2 - E12
- VHF Italian channels A - H
- UHF E21 - E69
- CATV S1 - S20
- HYPER S21 - S41
- CATV S01 - S05



```
TUNER PRESET          PROG10

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
▶CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
 FINE TUNING
```

If you know the number of the channel you want, press the programme number buttons. For example, for channel 5, first press "0" and then press "5."

6 To allocate another channel to another programme position, repeat steps 4 and 5.

7 Press Joystick.

Disabling unwanted programme positions

After tuning the TV channels, you can disable unused programme positions. The disabled positions will be skipped later when you press the PROG +/– buttons. You can also disable unwanted programme positions using the SET UP CH AND SHOWVIEW menu (page 22).

1 In step 5 above, press programme number button "0" twice to display the number "00" beside CHANNEL SET.

2 Press Joystick.

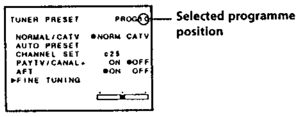
If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. However, if the picture is not clear, you may also use the manual tuning function.

1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.

2 Press MENU, then select TUNER PRESET and press Joystick.

3 Select FINE TUNING. The fine tuning meter appears.



```
TUNER PRESET          PROG10

 NORMAL/CATV    ●NORM CATV
 AUTO PRESET
 CHANNEL SET     c25
 PAYTV/CANAL+      ON ●OFF
 AFT              ●ON  OFF
▶FINE TUNING
```

4 Push Joystick ←/→ to get a clearer picture, then press Joystick.

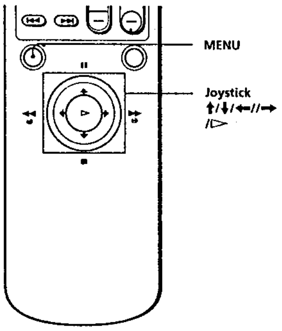
Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Note

- The menu disappears automatically if you don't proceed for more than a few minutes.

Setups — Setting up ShowView

ShowView is a feature in Sony VCRs that simplifies timer recording setting. To use ShowView, each programme position needs to be matched with its ShowView guide channel. To get the guide channel numbers, look in the programme guide for your area that features ShowView numbers.

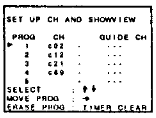


- If you want to record satellite broadcasts using ShowView, see page 18.

Before you start...
- Turn on the VCR and the TV.
- Set the TV to the video channel.

1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to SET UP CH AND SHOWVIEW and press Joystick.

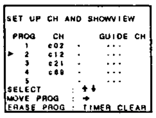
The preset channels are displayed on the screen. "---" in the GUIDE CH column means that the guide channel has not been preset.



```
SET UP CH AND SHOWVIEW

 PROG   CH      GUIDE CH
▶ 1    c02  .    ---
  2    c12  .    ---
  3    c21  .    ---
  4    c69  .    ---
  5         .    ---
SELECT      : ↑↓
MOVE PROG   : →
ERASE PROG  : TIMER CLEAR
```

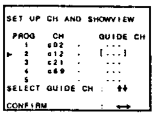
2 Push Joystick ↑/↓ to move the cursor (▶) to the row on which you want to set the guide channel.

To display other pages for programme positions 6 to 60, push Joystick ↑/↓ repeatedly.



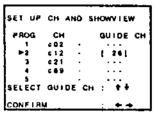
```
SET UP CH AND SHOWVIEW

 PROG   CH      GUIDE CH
  1    c02  .    ---
▶ 2    c12  .    ---
  3    c21  .    ---
  4    c69  .    ---
  5         .    ---
SELECT      : ↑↓
MOVE PROG   : →
ERASE PROG  : TIMER CLEAR
```

3 Push Joystick → twice to select the guide channel column(this is flashing).



```
SET UP CH AND SHOWVIEW

 PROG   CH      GUIDE CH
  1    c02  .    ---
▶ 2    c12  .   [---]
  3    c21  .    ---
  4    c69  .    ---
  5         .    ---
SELECT GUIDE CH :  ↑↓

CONFIRM         :  ←→
```

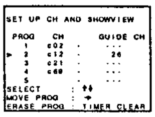
4 Push Joystick ↑/↓ to select the guide channel number assigned in the programme guide.



```
SET UP CH AND SHOWVIEW

 PROG   CH      GUIDE CH
  1    c02  .    ---
 ▶2    c12  .   [ 26]
  3    c21  .    ---
  4    c69  .    ---
  5         .    ---
SELECT GUIDE CH :  ↑↓

CONFIRM         :  ← →
```

5 Push Joystick ←/→ to confirm the setting.

The cursor (▶) appears in the leftmost column.



```
SET UP CH AND SHOWVIEW

 PROG   CH      GUIDE CH
  1    c02  .    ---
▶ 2    c12  .     26
  3    c21  .    ---
  4    c69  .    ---
  5         .    ---
SELECT      : ↑↓
MOVE PROG   : →
ERASE PROG  : TIMER CLEAR
```

6 To set the guide channel of another station, repeat steps 2 to 5.

If you want to change the programme positions of the stations, proceed to step 2 of " Setups —Changing/disabling programme positions" on page 20.

7 Press Joystick.

continued

Setting up ShowView for satellite broadcasts

If your satellite tuner is connected via the AERIAL IN connector, first you have to set a programme position for each satellite channel using the TUNER PRESET menu. Then set the guide channel number for each satellite channel using the SET UP CH AND SHOWVIEW menu.

If your satellite tuner is connected via the LINE-2 (TV) connector, you don't have to set programme positions nor guide channel numbers for satellite channels. Skip the following operations.

1 Turn on the satellite tuner.

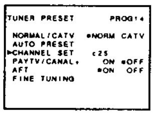
2 Press MENU, then select TUNER PRESET and press Joystick.

3 Press PROG +/– to select a programme position you want to use for recording or watching a satellite channel.

4 Select CHANNEL SET, then push Joystick → to tune the VCR to the satellite tuner.

The channel number displayed beside CHANNEL SET is used for receiving all satellite broadcasts from the satellite tuner.

Please remember this number for the following steps



```
TUNER PRESET            PROG:4

 NORMAL/CATV     ●NORM  CATV
 AUTO PRESET
▶CHANNEL SET      c25
 PAYTV/CANAL+      ON  ●OFF
 AFT              ●ON   OFF
 FINE TUNING
```

5 Press PROG +/– to select another programme position for another satellite channel, and press the programme number buttons to enter the same channel number as the one displayed in step 4. Otherwise the setting will not be memorized.

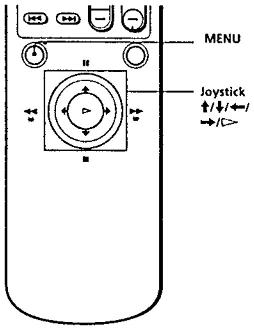
Repeat this step for all satellite channels, then press Joystick.

6 Set the guide channel number for each programme position assigned to the satellite channel, following the procedures in "Setups —Setting up ShowView" on page 16.

Notes
- The menu disappears automatically if you don't proceed for more than a few minutes.
- If you use a satellite tuner connected via the LINE-2 (TV) connector, you don't have to set up ShowView. Just record a satellite programme using ShowView, and the VCR automatically records the programme from the LINE-2 (TV) connector.
  For the SLV-E720NC/E720VP, use only the LINE-2 IN connector for recording with ShowView.

- If you inadvertently entered a guide channel number, push Joystick ↑/↓ repeatedly to reset the "GUIDE CH" column to "---." "---" appears between 1 and 255.
- The VCR does not allow entering the guide channel number, if the same number already has been set.
- When you record a satellite broadcast using ShowView, you need to select manually the desired channel on the satellite tuner.

Setups — Changing/ disabling programme positions



After setting programs and ShowView guide channels, you can change programme positions as you like. If any programme positions are unused or contain unwanted channels, you can disable them.

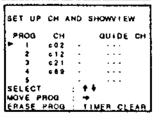
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.

Changing programme positions

e.g. Moving the programme position from 4 to 2

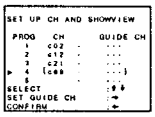
1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to SET UP CH AND SHOWVIEW and press Joystick



```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
▶  1     c02   -     ...
   2     c12   -     ...
   3     c21   -     ...
   4     c69   -     ...
   5           -     ...
SELECT       : ↑↓
MOVE PROG    : →
ERASE PROG   : TIMER CLEAR
```

2 Push Joystick ↑/↓ to move the cursor (▶) to the row on which you want to change the programme position, then push Joystick →.

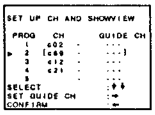
(To display other pages for programme positions 6 to 60, push Joystick ↑/↓ repeatedly).



```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
   1     c02   -     ...
   2     c12   -     ...
   3     c21   -     ...
▶  4    [c69   -     ...]
   5           -     ...
SELECT              :↑↓
SET GUIDE CH        :→
CONFIRM             :←
```

3 Push Joystick ↑/↓ until the selected channel and guide channel row moves to the desired programme position.

The selected channel and guide channel are inserted at the new programme position and the intermediate channels are displaced to fill the gap.



```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
   1     c02   -     ...
▶  2    [c69   -     ...]
   3     c12   -     ...
   4     c21   -     ...
   5           -     ...
SELECT              :↑↓
SET GUIDE CH        :→
CONFIRM             :←
```

4 Push Joystick ← to confirm the setting.

5 To change the programme position of another station, repeat steps 2 to 4.

6 Press Joystick.

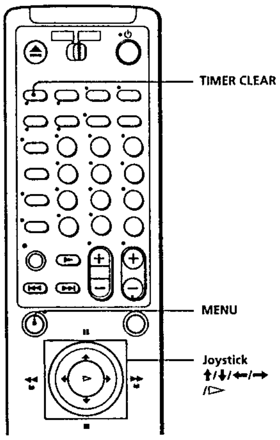
continued

Setups-Changing/disabling programme positions (continued)

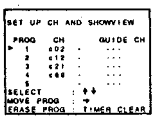
Disabling unused programme positions

Note

- Be sure to select correctly the programme position you want to disable. If you disable a programme position by mistake, you need to reset that channel manually.

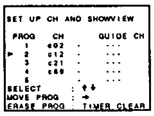


1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to SET UP CH AND SHOWVIEW and press Joystick.



```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
▶  1     c02   -     ...
   2     c12   -     ...
   3     c21   -     ...
   4     c69   -     ...
   5           -     ...
SELECT       : ↑↓
MOVE PROG    : →
ERASE PROG   : TIMER CLEAR
```

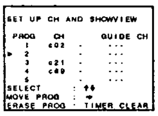
2 Push Joystick ↑/↓ to move the cursor (▶) to the row you want to disable.



```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
   1     c02   -     ...
▶  2     c12   -     ...
   3     c21   -     ...
   4     c69   -     ...
   5           -     ...
SELECT       : ↑↓
MOVE PROG    : →
ERASE PROG   : TIMER CLEAR
```

3 Press TIMER CLEAR.

The selected row will be cleared as shown on the right.

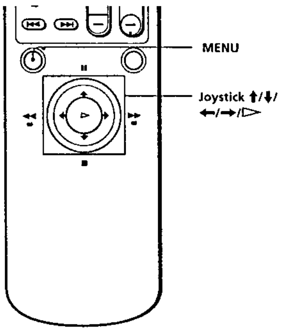


```
SET UP CH AND SHOWVIEW

 PROG    CH        GUIDE CH
   1     c02   -     ...
▶  2           -     ...
   3     c21   -     ...
   4     c69   -     ...
   5           -     ...
SELECT       : ↑↓
MOVE PROG    : →
ERASE PROG   : TIMER CLEAR
```

4 Repeat steps 2 and 3 for any other programme positions you want to disable.

5 Press Joystick.

Setups — Setting the clock

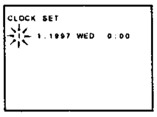


You must set the time and date properly on the VCR to be able to use the timer recording features.

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.

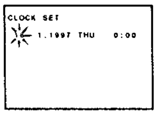
1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to CLOCK SET and press Joystick.



```
CLOCK SET
   1.1997 WED   0:00
```

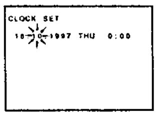
2 Push Joystick ↑/↓ to set the date.

The day of the week is set automatically.



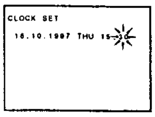
```
CLOCK SET
   1.1997 THU    0:00
```

3 Push Joystick → to select the month and set the month using Joystick ↑/↓.



```
CLOCK SET
 16-10-1997 THU   0:00
```

4 Set the year, hour and minutes in sequence, using Joystick → to select the item to be set, and push Joystick ↑/↓ to select the digits.



```
CLOCK SET
 16.10.1997 THU 15:10
```

5 Press Joystick to confirm and start the clock.

Tip

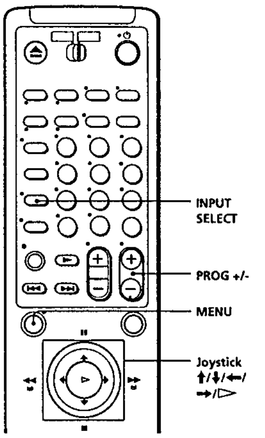
- To change the digits during setting, push Joystick ← to return to the item to be changed, and select the digits using Joystick ↑/↓.

Note

- The menu disappears automatically if you don't proceed for more than a few minutes.

Setups — Setting the usage of 2nd Euroconnector

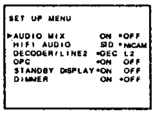
(SLV-E720NP/E725NP/ E720VC/E717VC only)



You can use the 2nd Euroconnector either as an Input (for ex. connect a satellite tuner) or to connect a decoder (Canal + / Pay -TV).

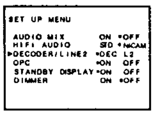
Selection

1 Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to SET UP MENU and press Joystick.



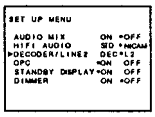
```
SET UP MENU

▶AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
 DECODER/LINE2     •DEC  L2
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

2 Push Joystick ↑/↓ to move the cursor (▶) to DECODER/LINE 2.



```
SET UP MENU

 AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
▶DECODER/LINE2     •DEC  L2
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

3 Push Joystick ←/→ to select DEC or L2 with the dot (●), then press Joystick.



```
SET UP MENU

 AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
▶DECODER/LINE2      DEC •L2
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

Operation

If you select L2:

When you press PROG +, the programme positions change as follows:

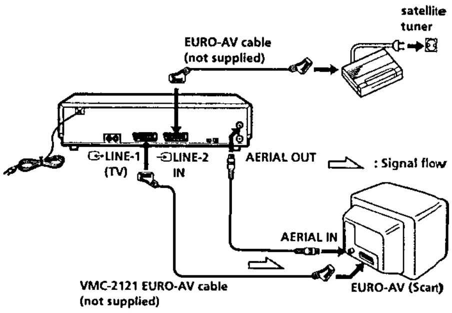
3→4→...-59→L1→L2→1→2

or when you press PROG - :

3→2→1→L2→L1→59.....

You may connect another VCR, satellite tuner or camcorder into LINE 2 connector

For ex:



For using this kind of connection, you have to press INPUT SELECT or PROG +/- so that "L2" lights in the display window.

Note

- "L2" disappears after a few seconds.
- If DEC has been selected in SET UP MENU,the VCR will not function if it is connected to L2.

If you select DEC:

When you press PROG +/-, the programme positions change as follows:

1→2→....59→L1→1→2

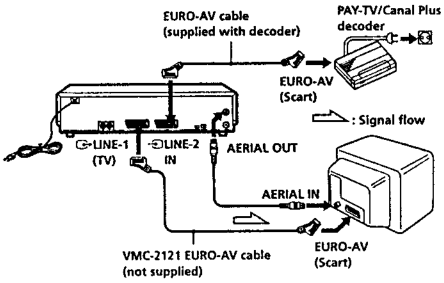
or: 2→1→L1→59....2→1

Setting the PAY-TV/Canal Plus decoder

(SLV-E720NP/E725NP/E720VC/E717VC only)

You can watch or record PAY-TV/Canal Plus programmes if you connect a decoder (not supplied) to the VCR.

Connecting a decoder

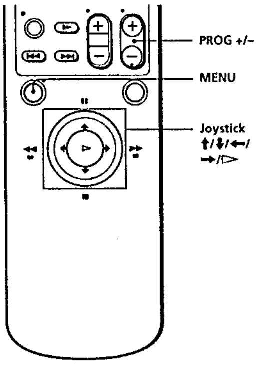


Setting PAY-TV/Canal Plus channels

To watch or record PAY-TV/Canal Plus programmes, proceed as follows:

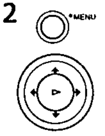
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



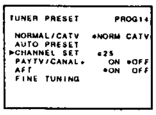
1 Turn on your decoder.

2



Press MENU, then push Joystick ↑/↓ to move the cursor (▶) to TUNER PRESET and press Joystick.

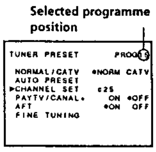
e.g. SLV-E720NP/E725NP



```
TUNER PRESET          PROG14

 NORMAL/CATV     •NORM CATV
 AUTO PRESET
▶CHANNEL SET      C25
 PAYTV/CANAL+      ON •OFF
 AFT              •ON  OFF
 FINE TUNING
```

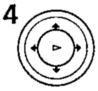
3

Press PROG +/– to select the desired programme position.

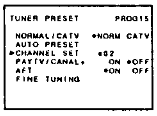


```
TUNER PRESET          PROG15

 NORMAL/CATV     •NORM CATV
 AUTO PRESET
▶CHANNEL SET      C25
 PAYTV/CANAL+      ON •OFF
 AFT              •ON  OFF
 FINE TUNING
```

4

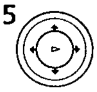


Push Joystick ↑/↓ to move the cursor (▶) to CHANNEL SET, then tune in the PAY-TV/Canal Plus channels.



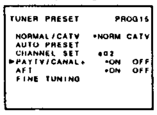
```
TUNER PRESET          PROG15

 NORMAL/CATV     •NORM CATV
 AUTO PRESET
▶CHANNEL SET      C02
 PAYTV/CANAL+      ON •OFF
 AFT              •ON  OFF
 FINE TUNING
```

5



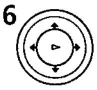
Push Joystick ↑/↓/←/→ to move the cursor (▶) to PAY-TV/ CANAL PLUS (SLV-E720NP/E725NP/SLV-E720VC/E717VC), then select ON.

SLV-E720NP/E725NP/ E720VC/E717VC



```
TUNER PRESET          PROG15

 NORMAL/CATV     •NORM CATV
 AUTO PRESET
 CHANNEL SET      C02
▶PAYTV/CANAL+     •ON  OFF
 AFT              •ON  OFF
 FINE TUNING
```

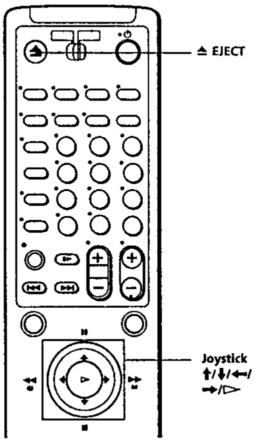
6



Press Joystick.

continued

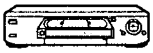
Playing a tape



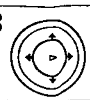
1 Turn on your TV and set it to the video channel.

2 Insert a tape.

The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed (page 34).



3



Press Joystick to ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

continued

Playing a tape (continued)

Additional tasks

To	Operation
Stop play	Push Joystick ↓ to ■ STOP
Pause play	Push Joystick ↑ during playback to ❚❚ PAUSE
Resume play after pause	Press Joystick or push ↑ to ❚❚ PAUSE
Search forward	Push Joystick → to ⊕ during playback
Search backward	Push Joystick ← to ⊖ during playback
Fast-forward the tape	Push Joystick → to ▶▶ FF during stop
Rewind the tape	Push Joystick ← to ◀◀ REW during stop
Eject the tape	Press ≜ EJECT

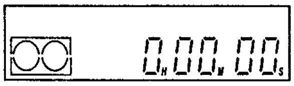
To play an NTSC-recorded tape

Set NTSC PB switch at the rear of the VCR according to the colour system of your TV.

When your TV is	Set NTSC PB to
PAL only	ON PAL TV
PAL and NTSC	NTSC 4.43

To use the time counter

At the point on the tape that you want to find later, press COUNTER RESET. The counter in the display window resets to "0H00M00S." Search for the point afterwards by referring to the counter.

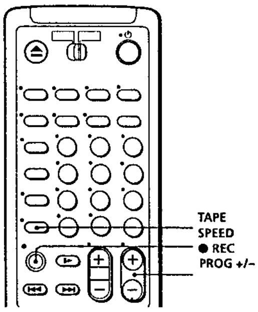


To display the counter on the TV screen, press DISPLAY.

Notes

- Depending on your TV, the following may occur while playing an NTSC-recorded tape:
  - The picture becomes black and white.
  - The picture shakes.
  - No picture appears on the TV screen.
  - Black streaks appear horizontally on the TV screen.
  - The colour density increases or decreases.
- If you play back a tape in LP or EP mode with NTSC system, the sound is heard in monaural.
- The counter resets to "0H00M00S" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.

Recording TV programmes

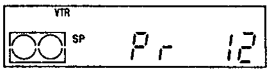


1 Turn on your TV and set it to the video channel.

To record from a decoder, turn it on (SLV-E720NP/E725NP/E720VC/E717VC only).

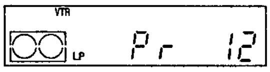
2 Insert a tape with its safety tab in place.

3 +PROG – Press PROG +/– to select the programme position you want to record.



4 TAPE SPEED – Press TAPE SPEED to select the tape speed, SP or LP.

LP (Long Play) provides recording time twice as long as SP (Standard Play), however, SP produces better picture and audio quality.



5 ●REC – Press ● REC to start recording.

continued

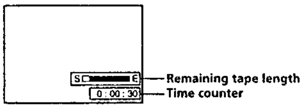
Recording TV programmes (continued)

To stop recording

Push Joystick to ■ STOP.

To check the remaining tape length

Press DISPLAY. 30 seconds after, the white bar indicates the approximate length of tape remaining.

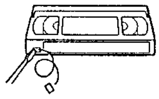


To watch another TV programme while recording

1. Press TV/VIDEO to turn off the VTR indicator in the display window.
2. Select another programme position on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on a tape again, cover the tab hole with adhesive tape.



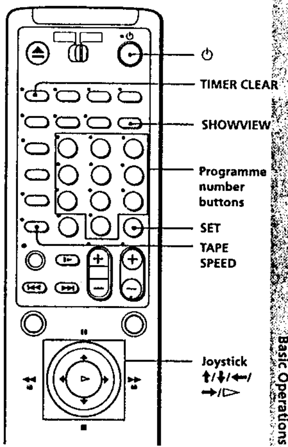
Tips

- To select a programme position, you can use the programme number buttons on the remote commander. For two-digit numbers, press the -/– (ten's digit) button followed by the programme number buttons.
- You can select a video source from the LINE-1 (TV) connector or the LINE-2 IN connector using INPUT SELECT.
- The display appears on the TV screen indicating information about the tape, but the information won't be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on (SLV-E720NP/E725NP/E720VC /E717VC only).

Notes

- The display does not appear during still (pause) mode or slow-motion playback.
- You cannot watch a PAY-TV/Canal Plus programme while recording another PAY-TV/Canal Plus programme (SLV-E720NP/E725NP/E720VC /E717VC only).

Recording TV programmes using ShowView

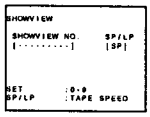


Just enter the programme's ShowView number listed in the TV programme guide. The date, times and programme position of that programme are set automatically. You can preset up to eight programmes at a time.

Before you start...

- Check that the VCR clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and set it to the video channel.

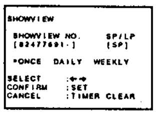
1 SHOWVIEW – Press SHOWVIEW.



```
SHOWVIEW

 SHOWVIEW NO.       SP/LP
 [··········]       [SP]



SET          :0-9
SP/LP        :TAPE SPEED
```

2 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ – Press the programme number buttons to enter the programme's ShowView number.

If you make a mistake, press TIMER CLEAR and re-enter the correct number.

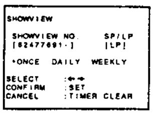


```
SHOWVIEW

 SHOWVIEW NO.       SP/LP
 [82477691-]        [SP]

 •ONCE   DAILY   WEEKLY

SELECT       :←→
CONFIRM      :SET
CANCEL       :TIMER CLEAR
```

continued

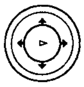
Recording TV programmes using ShowView (continued)

3 TAPE SPEED – Press TAPE SPEED to select SP or LP.

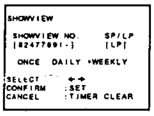


```
SHOWVIEW

 SHOWVIEW NO.       SP/LP
 [82477691-]        [LP]

 •ONCE   DAILY   WEEKLY

SELECT       :←→
CONFIRM      :SET
CANCEL       :TIMER CLEAR
```

4 Push the Joystick ←/→ to select ONCE, DAILY or WEEKLY:



To record	Select
Only once	ONCE
Everyday Monday to Friday	DAILY
Once a week	WEEKLY



```
SHOWVIEW

 SHOWVIEW NO.       SP/LP
 [82477691-]        [LP]

 ONCE   DAILY  •WEEKLY

SELECT        ←→
CONFIRM      :SET
CANCEL       :TIMER CLEAR
```

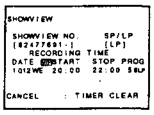
5 SET – Press SET button

The date, start and stop times, programme position, and tape speed appear on the TV screen.

For SLV-E720 VC, " V/P" appears automatically.

If you want to turn on/off the VPS/PDC function, see page 44 and change the TIMER SET/CHECK menu.

If the information is not correct, press TIMER CLEAR to cancel the setting.



```
SHOWVIEW

 SHOWVIEW NO.       SP/LP
 [82477691-]        [LP]
   RECORDING TIME
 DATE V/P START  STOP PROG
 1012WE  20:00   22:00 5LP

CANCEL     :  TIMER CLEAR
```

6 To enter another setting, repeat steps 1 to 5.

7 ⏻ – Press ⏻ to turn off the VCR.

The TIMER indicator appears in the display window and the VCR stands by for recording.

To stop recording

To stop the VCR while recording, push Joystick to ■ STOP.

To record satellite broadcasts

If you connect the satellite tuner and the VCR, you can record satellite programmes.

1. Turn on the satellite tuner.
2. On the satellite tuner, select the satellite programme for which you wish to make a timer setting.
3. Repeat the steps described above.
4. Keep the satellite tuner turned on until the VCR finishes recording the satellite programme for which you have made a timer setting.

To use the VCR after setting the timer

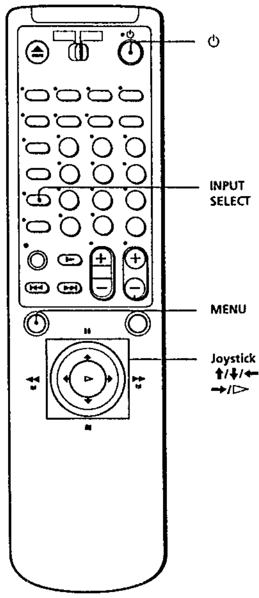
To use the VCR before a timer recording begins, just press ⏻. The TIMER indicator turns off and the VCR switches on. Remember to press ⏻ to reset the VCR after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.
- Watch another TV programme.

Tip
- To cancel the Show View procedure, press SHOWVIEW before pressing SET.

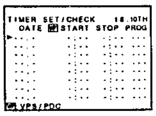
Setting the timer manually



If ShowView is not available in your area, follow the instructions below to set the timer to record programmes.

Before you start...
- Check that the VCR clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and set it to the video channel.
- To record from a decoder, turn it on (SLV-E720NP/E725NP/E720VC/E717VC only).

1 MENU — Press MENU and select TIMER SET/CHECK, then press Joystick.

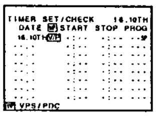

TIMER SET/CHECK 16.10TH
DATE V/P START STOP PROG
V/P VPS/PDC

2 Set the date, VPS/PDC function, start and stop times, programme position, and tape speed:

1 Push Joystick → to select each item in turn. (flash)

2 Push Joystick ↑/↓ to set each item.

To correct a setting, push Joystick ← to return to that setting and reset.


TIMER SET/CHECK 16.10TH
DATE V/P START STOP PROG
16.10TH V/P
V/P VPS/PDC

To record the same programme every day or the same day every week, push Joystick ↓ while the date is selected. For details, see "Daily/weekly recording" on page 40.

If you don't want to use the VPS/PDC function, push Joystick ↑/↓ to turn off V/P in the "V/P" position. For details, see "Timer recording with VPS/PDC signals" on page 40.

To record from an other source connected to the LINE-1 (TV) connector (or the LINE-2 IN connector), press INPUT SELECT to display "L1" (or "L2") in the "PROG" position.

3 Push Joystick → to confirm the setting.

The cursor (▶) appears at the top of the line. To enter another setting, move the cursor to the next line and repeat step 2.

4 Press Joystick.

5 Press ⏻ to turn off the VCR.

The TIMER indicator appears in the display window and the VCR stands by for recording.

To record from an other source, leave the connected equipment switched on.

To stop recording

To stop the VCR while recording, push Joystick to ■ STOP.

continued

Setting the timer manually (continued)

Daily/weekly recording

In step 2 above, push Joystick ↓ to select the recording pattern. Each time you push Joystick ↓, the indication changes as shown below.

**the current date → SU-SA → MO-SA → MO-FR → EVERY SA .....
→ EVERY MO → EVERY SU → 1 month later →(cycles backward)
→ the current date**

Timer recording with VPS/PDC signals

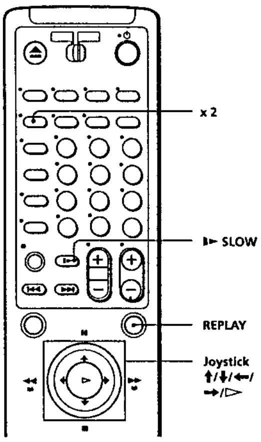
Broadcast systems transmit VPS (Video Programme System) or PDC (Programme Delivery Control) signals with their TV programmes. These signals ensure that your timer recordings are made regardless of broadcast delay, early starts or broadcast interruptions.

In step 2 above, push Joystick ↑/↓ to turn on the V/P indicator after you set the recording date. If you do not want to set the VPS/PDC function, turn off the V/P indicator. You can also use the VPS/PDC function for a source connected to the LINE-1 (TV) connector (and LINE-2 IN connector).

Tips
- To set the programme position, you can also use the PROG +/– or programme number buttons.
- To set the tape speed, you can also use TAPE SPEED.

Notes
- When setting the timer with VPS/PDC signals, enter the start and stop times exactly as indicated in the TV programme guide, otherwise the VPS/PDC function won't work.
- If the VPS/PDC signal is too weak or the broadcasting station failed to transmit VPS/PDC signals, the VCR will start recording at the set time without using the VPS/PDC function.
- "TIMER" and tape indicator flash in the display window if you press ⏻ with no tape inserted.

Playing/searching at various speeds



Playback options	Operation
Fast-forward/rewind	During stop, push Joystick to ►► FF or ◄◄ REW and release.
View the picture during fast-forward or rewind	During fast-forward, push and hold down Joystick to ►► FF. During rewind, push and hold down Joystick to ◄◄ REW.
Play at twice the normal speed	During playback, press x 2.
Play at non locked high speed	During playback, push Joystick to ⊕ or ⊖ for more than 1 sec.. Release Joystick to go back to playback mode.
Play at locked high speed	During playback, push Joystick to ⊕ or ⊖ for less than 1 sec..
Play in slow motion	During playback or pause, press I► SLOW .
Play frame by frame	During pause, push Joystick to ►► FF or ◄◄ REW. To play one frame each second, hold the Joystick down to ►► FF or ◄◄ REW.
Rewind and start play	During stop, while pressing ◄◄ REW on the VCR, press ▷ PLAY on the VCR, then release both.
Replay what you just saw	During playback, press REPLAY one, two,three or four times for a replay during 10, 20, 30 or 40 seconds.

continued

Playing/searching at various speeds (continued)

To resume normal playback

Press Joystick to ▷ PLAY.

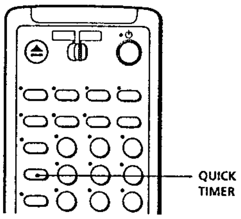
Tip

- Adjust the picture using PROGRAM +/- buttons on the VCR if:
  - –Streaks appear while playing in slow motion.
  - –Bands appear at the top or bottom while pausing.
  - –The picture shakes while pausing.

Notes

- The playback sound is muted during these operations.
- In the LP mode, noise may appear or there may be no colour.

Recording TV programmes using the quick timer



After starting recording in the normal way, you can have the VCR stop recording automatically after a specified duration.

1 While recording, press QUICK TIMER once.

TIMER REC
SP
0:00

2 Press QUICK TIMER repeatedly to set the duration.

Each press advances the time in increments of 30 minutes.

→ 0:00 → 0:30 → 1:00 -----→ 10:30 → 11:00

The duration decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press QUICK TIMER repeatedly to set to the new duration.

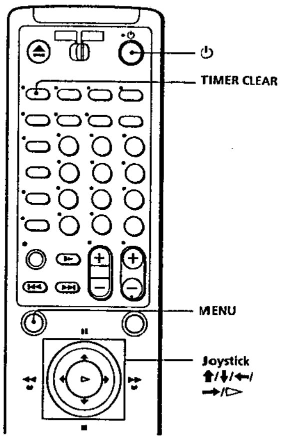
To stop recording

To stop the VCR while recording, push Joystick to ■ STOP.

Tip

- You can also set the quick timer and start recording during the stop mode.

Checking/changing/cancelling timer settings



Before you start...

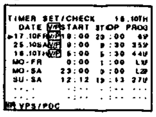
- Turn on your TV and set it to the video channel.

1 Press ⏻ to turn on the VCR.

2 Press MENU, then select TIMER SET/CHECK:

- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press Joystick, then turn off the VCR to return to recording standby.

e.g. SLV-E720NC/E720VP



3 Push Joystick ↑/↓ to select the setting you want to change or cancel:

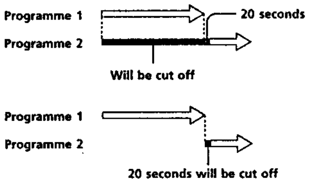
- To change the setting, push Joystick ←/→ to select the item you want to change, and push Joystick ↑/↓ to reset it. To cancel the VPS/PDC function, turn off the V/P indicator. Then, push Joystick → repeatedly until the cursor (►) appears in the leftmost column.
- To cancel the setting, press TIMER CLEAR.

4 Press Joystick.

If any settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The programme that starts first has priority and the second programme starts recording only after the first programme has finished. If the programmes start at the same time, the programme listed first in the menu has priority.



Recording stereo and bilingual programmes

In ZWEITON (German stereo) system

This VCR automatically receives and records stereo and bilingual programmes based on the ZWEITON system. When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To select bilingual sound while recording

Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO

In NICAM system (SLV-E720NC/E720NP/E725NP only)

This VCR receives and records stereo and bilingual programmes based on NICAM system (the NICAM indicator appears). When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To record a NICAM programme, HIFI AUDIO in the SET UP MENU should be set to NICAM (initial setting). To check the menu setting, see page 50 for details.

To select the sound while recording

Press AUDIO MONITOR to select the sound you want.

Stereo programme

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Standard sound*	No indicator	No indicator

* Usually the mixed sound of left and right channels (monaural)

Bilingual programme

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO
Standard sound*	No indicator	No indicator

* Usually the main sound (monaural)

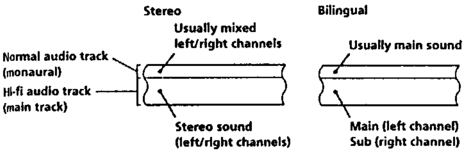
Selecting the sound during playback

Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Stereo/main and sub (left and right channels)	STEREO	STEREO
Left channel/main	LCH	STEREO
Right channel/sub	RCH	STEREO
Standard sound	No indicator	No indicator

How sound is recorded on a video tape

The VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.

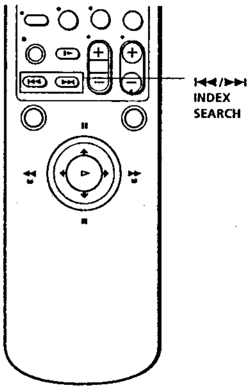

Stereo
Bilingual
Usually mixed left/right channels
Usually main sound
Normal audio track (monaural)
Hi-fi audio track (main track)
Stereo sound (left/right channels)
Main (left channel)
Sub (right channel)

Notes

- To listen to playback sounds in stereo, you must use the EURO-AV or AUDIO OUT connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- If the AUDIO MONITOR button does not function, check that AUDIO MIX in the SET UP MENU is set to OFF.
- If HIFI AUDIO is set to STD, the standard sound will be recorded on both the hi-fi and normal audio tracks. Pressing AUDIO MONITOR will not change the sound (SLV-E720NC/E720NP/E725NP only).

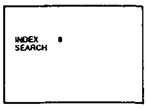
Searching using the index function

The VCR marks the tape with an index signal at the point where each recording begins. You can use these signals as references to find a specific recording. The VCR can search up to 99 index signals ahead of or behind the current position.



1. Insert an indexed tape into the VCR.
2. Press ⏮/⏭ INDEX SEARCH repeatedly to specify how many index signals ahead or backwards you want to search:
   - To search ahead, press ⏭ INDEX SEARCH.
   - To search backwards, press ⏮ INDEX SEARCH.

   The VCR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.



To stop searching

Push Joystick to ■ STOP.

Note

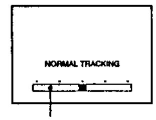
- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

Adjusting the picture

Adjusting the tracking

Although the VCR automatically adjusts the tracking when playing a tape (the 🅼 indicator flashes in the display window, then lights off), distortion may occur if the tape was recorded in poor condition. If so, adjust the tracking manually .

During playback, press PROGRAM +/- buttons on the VCR to display the tracking meter (🅼 lights up). Distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, eject and reinsert the tape or press the buttons PROGRAM + and PROG RAM- at the same time so that the trackingmeter comes back to the center.

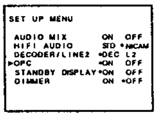


Tracking meter

About Optimum Picture Control (OPC)

Optimum Picture Control (OPC) automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set OPC to ON in the SET UP MENU (with the OPC indicator lit in the display window).

e.g. SLV-E720NP/E725NP



```
SET UP MENU

 AUDIO MIX          ON   OFF
 HIFI AUDIO         STD •NICAM
 DECODER/LINE2     •DEC  L2
▶OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

OPC playback

The OPC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with OPC.

OPC recording

Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the OPC function (the OPC indicator flashes rapidly). This adjustment is retained until the tape is ejected.

To deactivate the OPC

Press MENU and select SET UP MENU, then set OPC to OFF. The OPC indicator in the display window goes off.

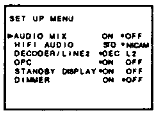
Note

- There is a delay of a few seconds before the VCR actually starts recording while the VCR analyses the tape. To avoid the delay, first set the VCR to recording pause (the OPC indicator flashes slowly) and press ● REC to have the VCR analyse the tape (the OPC indicator flashes rapidly). After the OPC indicator stops flashing, push Joystick to ❚❚ PAUSE to start recording immediately. If you want to start recording quickly without using the OPC function, first set the VCR to recording pause (the OPC indicator flashes slowly) and push Joystick to ❚❚ PAUSE to start recording.

Changing menu options

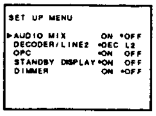
1 Press MENU, then select SET UP MENU.

SLV-E720NP/E725NP



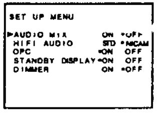
```
SET UP MENU

▶AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
 DECODER/LINE2     •DEC  L2
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

SLV-E720VC/E717VC



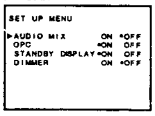
```
SET UP MENU

▶AUDIO MIX          ON  •OFF
 DECODER/LINE2     •DEC  L2
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

SLV-E720NC



```
SET UP MENU

▶AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

SLV-E720VP



```
SET UP MENU

▶AUDIO MIX          ON  •OFF
 OPC               •ON   OFF
 STANDBY DISPLAY   •ON   OFF
 DIMMER             ON  •OFF
```

2 Push Joystick ↑/↓ to select the option to change, then push Joystick ←/→ to change the setting.

3 Press Joystick to return to the original screen.

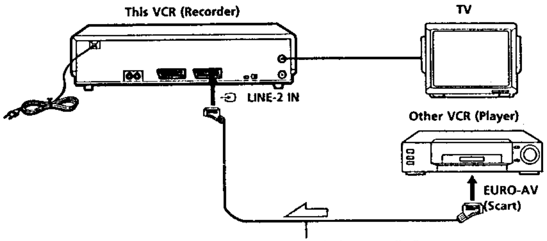
Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
HIFI AUDIO (SLV-E720NC/E720NP /E725NP only)	STD to record standard sound on the hi-fi audio track. **NICAM** to record NICAM broadcasts on the hi-fi audio track. For details, see page 46.
AUDIO MIX	ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button will not function. **OFF** to listen to the hi-fi and normal audio tracks separately. Select the sound using the AUDIO MONITOR button.
DECODER/LINE 2 (SLV-E720NP/E725NP /E720VC/E717VC)	**DEC** select PAY-TV DECODER (Canal Plus) for 2nd Euroconnector L2 select LINE-2 IN for 2nd Euroconnector only)
OPC	**ON** to switch on the OPC (Optimum Picture Control) function and improve picture quality, OFF to switch OPC off.
STANDBY DISPLAY	**ON** to light up the indicators in the display window while the VCR is standing by. OFF to turn off the indicators in the display window to conserve the VCR power
DIMMER	ON to make the display window dim, **OFF** to make it brighter.

Editing with another VCR

How to connect to record on this VCR



VMC-2121 EURO-AV cable (not supplied)

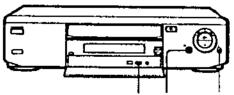
⇦ : Signal flow

Tips

- If the other VCR doesn't have a EURO-AV (Scart) connector, use the VMC-2106 cable instead and connect the cable to the line out jacks of the other VCR.
- Be sure to select LINE-2 IN in 2nd EURO-AV in SET UP MENU (SLV-E720VC/ E717VC/E720NP/E725NP only).

continued

Operation (when recording on this VCR)



Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT to display "L2" in the display window.
- Press TAPE SPEED to select the tape speed, SP or LP.
- On this VCR, press EDIT so that EDIT lights in the display. If the other VCR has a similar feature, set it to ON as well.

1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.

2 Insert a tape with its safety tab in place into this (recording) VCR. Search for the point to start recording and press ❚❚ PAUSE.

3 Press ● REC on this VCR to set it to recording pause.

4 To start editing, press the ❚❚ PAUSE buttons on both VCRs at the same time.

To stop editing

Press the ■ STOP buttons on both VCRs.

Tips

- To edit more precisely, press the ❚❚ PAUSE buttons on the VCRs to release pause.
- To cut out unwanted scenes while editing, press ❚❚ PAUSE on this VCR when an unwanted scene begins. When it ends, press ❚❚ PAUSE again to resume recording (Assemble Editing).

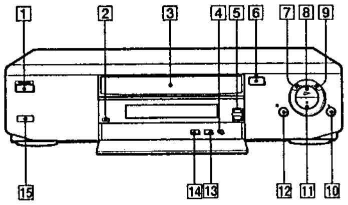
Note

- If you start recording following the procedure above, the VCR won't start recording with the OPC function. To record a tape with the OPC function, press ● REC again during recording pause in step 3 so that the VCR analyses the tape. Then when you start recording in step 4, press ❚❚ PAUSE after the OPC indicator stops flashing. If you press ❚❚ PAUSE before the OPC indicator stops flashing, the OPC function is cancelled.

Index to parts and controls

Refer to the pages indicated in parentheses ( ) for details.

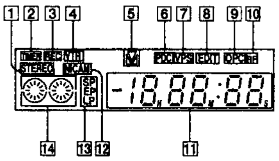
Front panel



1 ON/STANDBY switch/indicator (9)
2 TV/VTR button
3 Tape compartment
4 RF CHANNEL button (9)
5 PROGRAM +/– buttons (10)
Tracking buttons (49)
6 ≜ EJECT button (32)
7 ◀◀ REW button (41)
8 ▷ PLAY button (41)
9 ▶▶ FF button
10 ● REC button (52)
11 ■ STOP button (52)
12 ❚❚ PAUSE button (52)
13 EDIT button (52)
14 TAPE SPEED button
15 Remote sensor

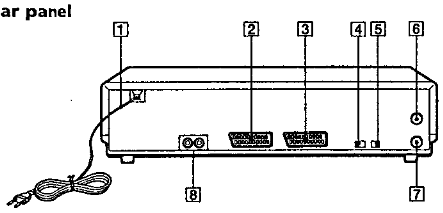
continued

Display window



1 STEREO indicator (46)
2 TIMER indicator (36, 39)
3 REC indicator
4 VTR indicator (8)
5 AUTO TRACKING indicator (49)
6 PDC indicator (40)
7 VPS indicator (40)
8 EDIT indicator (52)
9 OPC indicator (49)
10 RF indicator (9)
11 Line/programme position indicator (9, 33, 52)
Time counter/clock (32)
12 NICAM indicator (SLV-E720NC/E720NP/E725NP only) (46)
13 Tape speed indicator (33)
14 Tape indicator

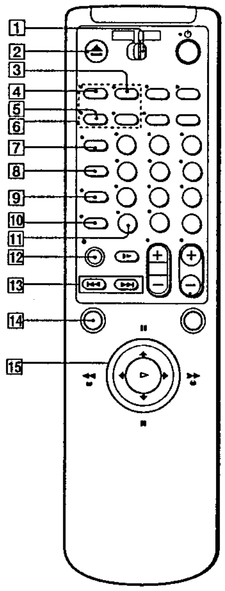
Rear panel



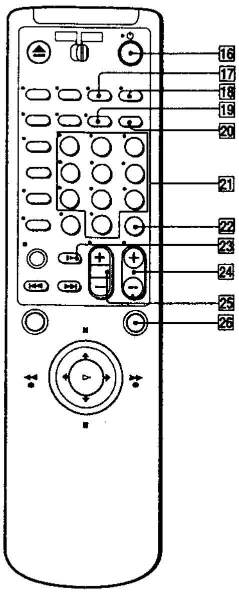
1 Mains lead (7)
2 ⊖→ LINE-1 TV/LIGNE -1 TV connector (8, 27, 28)
3 →⊐ DECODER/DECODEUR/LINE-2 IN/ENTREE LIGNE-2 connector (27, 28, 51) (SLV-E720NP/E725NP/E720VC/E717VC only)
3 →⊐ LINE-2 IN/ENTREE LIGNE-2 connector (27, 28, 51) (SLVE720NC/E720VP)
4 NTSC 4.43 switch (32)
5 RF MODULATOR switch (7)
6 AERIAL OUT/ANTENNE SORTIE connector (7)
7 AERIAL IN/ANTENNE ENTREE connector (7)
8 AUDIO OUT L/R/SORTIE AUDIO D/G jacks (8)

continued

Remote commander



1 TV/VIDEO remote control switch (5)
2 ≜ EJECT button (32)
3 COUNTER RESET button (32)
4 TIMER CLEAR button (22, 36, 44)
5 x 2 button (41)
6 FASTEXT buttons (*for TV* (6)
7 DISPLAY button (34)
8 QUICK TIMER button (43)
9 INPUT SELECT button (34, 39, 52)
⊜ Teletext button (*for TV)* (6)
10 TAPE SPEED button (33)
○ TV power on/TV mode select button (*for TV*) (6)
11 -/-- (ten's digit) button (34)
12 ● REC button (33)
13 ⏮/⏭ INDEX SEARCH buttons (48)
14 MENU button (11)
15 Joy stick (11)



16 ⏻ (on/standby) switch (36)

17 WIDE button (*for TV* (6)

18 AUDIO MONITOR button (46)

19 TV/VIDEO button (8)

20 SHOWVIEW button (35)

21 Programme number buttons (14, 34, 35)

22 SET button (36)

23 I► SLOW button (41)

24 PROG +/– buttons (14, 29, 33)

√ /◊ Teletext page access buttons (*for TV*) (6)

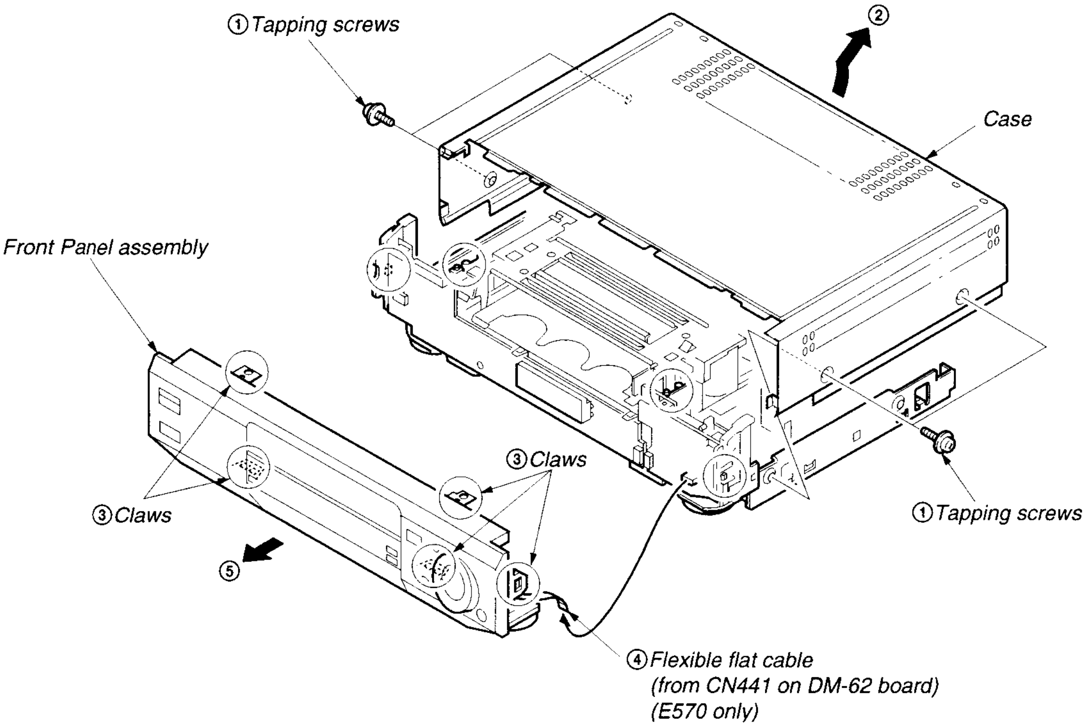
25 VOL +/– buttons (*for TV*) (6)

26 REPLAY button (41)

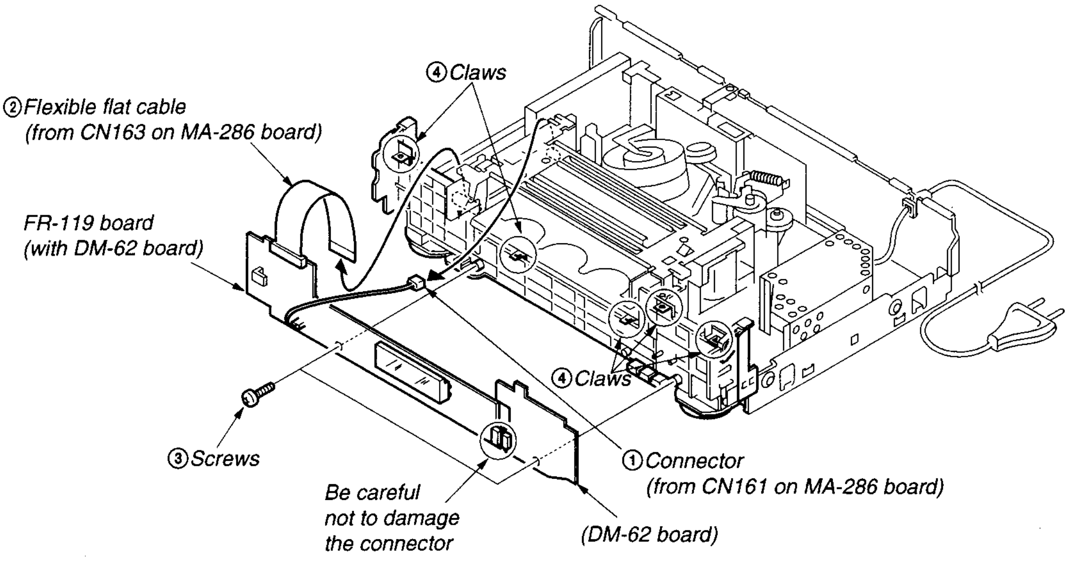
SECTION 2
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

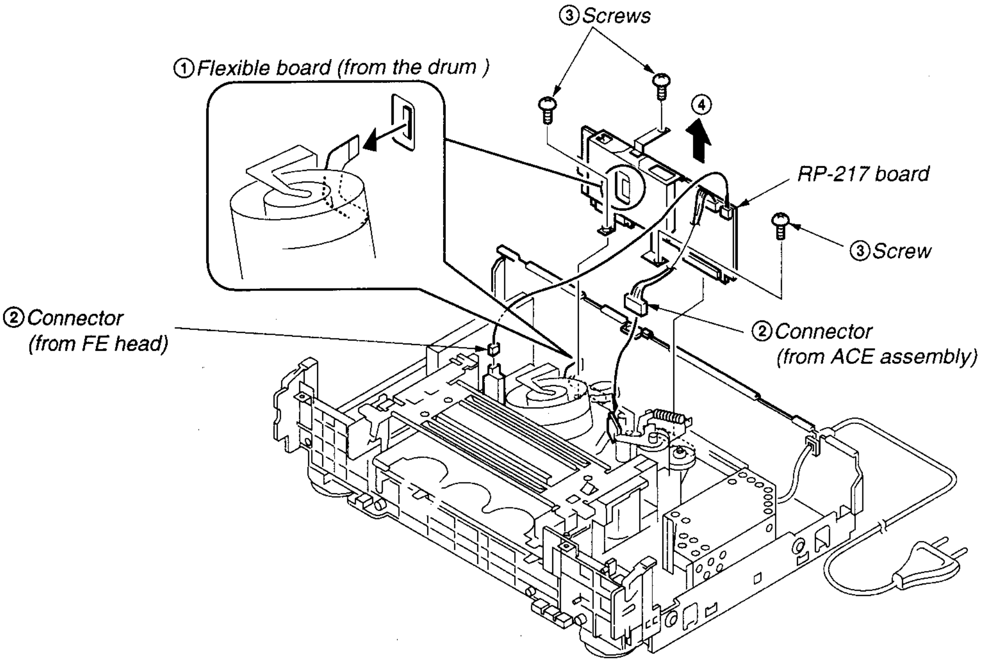
2-1. CASE AND FRONT ASSEMBLY


① Tapping screws
②
Case
Front Panel assembly
③ Claws
③ Claws
① Tapping screws
⑤
④ Flexible flat cable
(from CN441 on DM-62 board)
(E570 only)

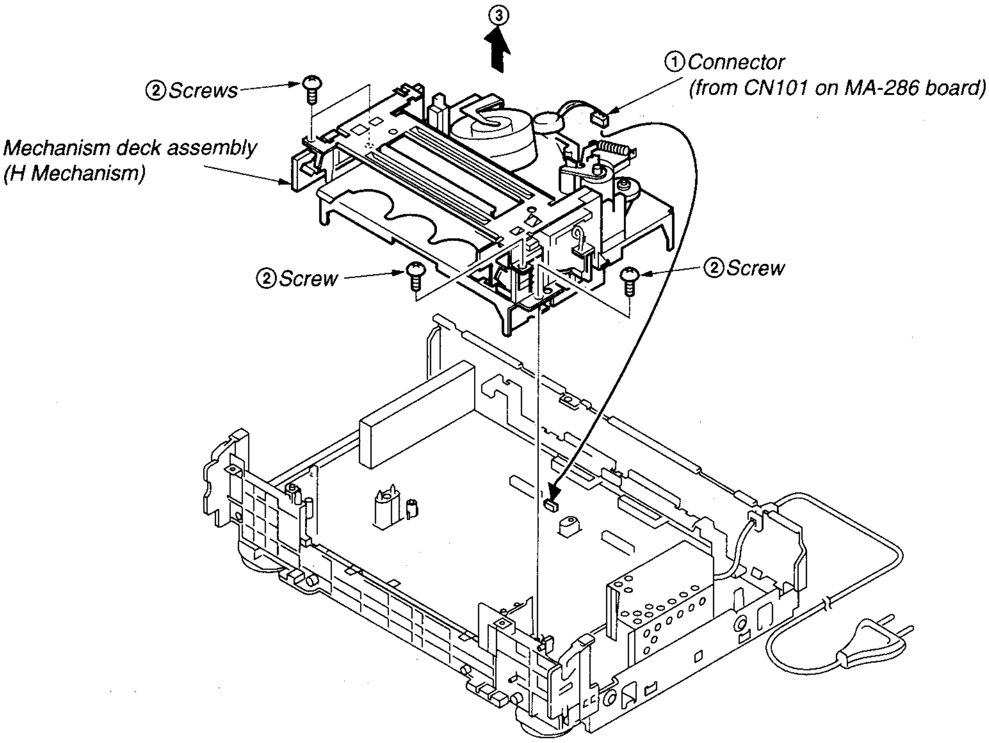
2-2. FR-119 BOARD (WITH DM-62 BOARD)


④ Claws
② Flexible flat cable
(from CN163 on MA-286 board)
FR-119 board
(with DM-62 board)
④ Claws
③ Screws
① Connector
(from CN161 on MA-286 board)
Be careful
not to damage
the connector
(DM-62 board)

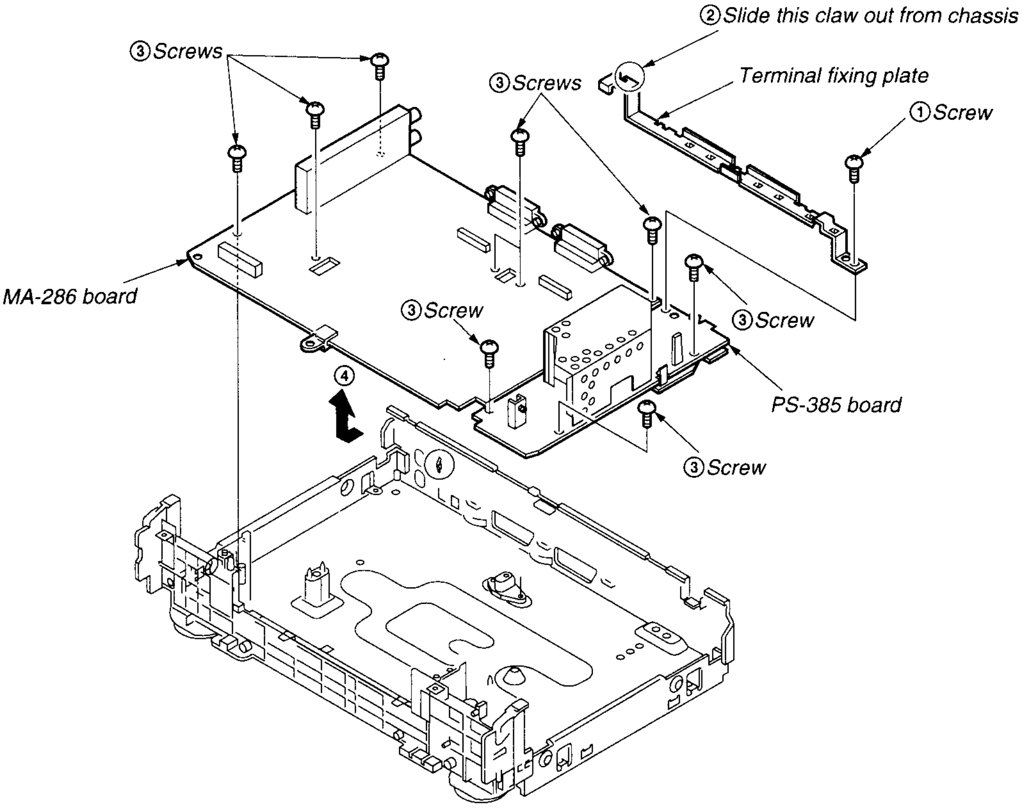
2-3. RP-217 BOARD


③Screws
①Flexible board (from the drum)
④
RP-217 board
③Screw
②Connector
(from FE head)
②Connector
(from ACE assembly)

2-4. MECHANISM DECK ASSEMBLY (H MECHANISM)

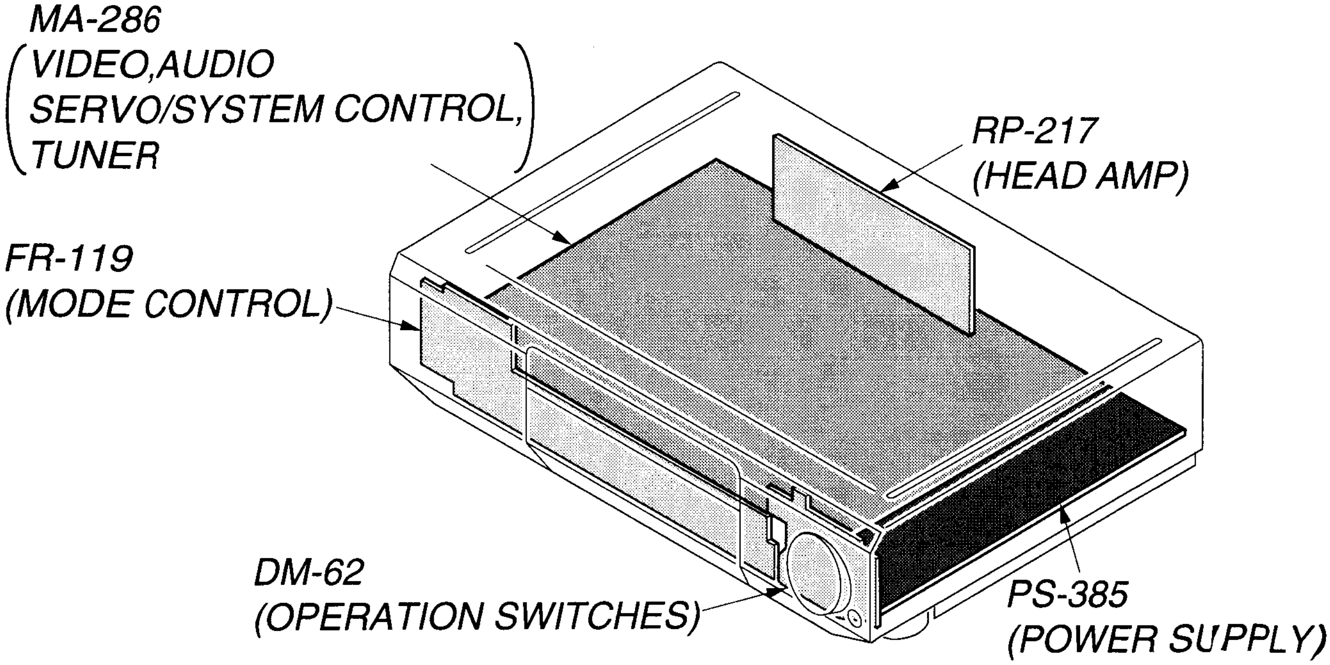

③
①Connector
(from CN101 on MA-286 board)
②Screws
Mechanism deck assembly
(H Mechanism)
②Screw
②Screw

2-5. MA-286 AND PS-385 BOARDS



②Slide this claw out from chassis
③Screws
③Screws
Terminal fixing plate
①Screw
MA-286 board
③Screw
③Screw
PS-385 board
④
③Screw

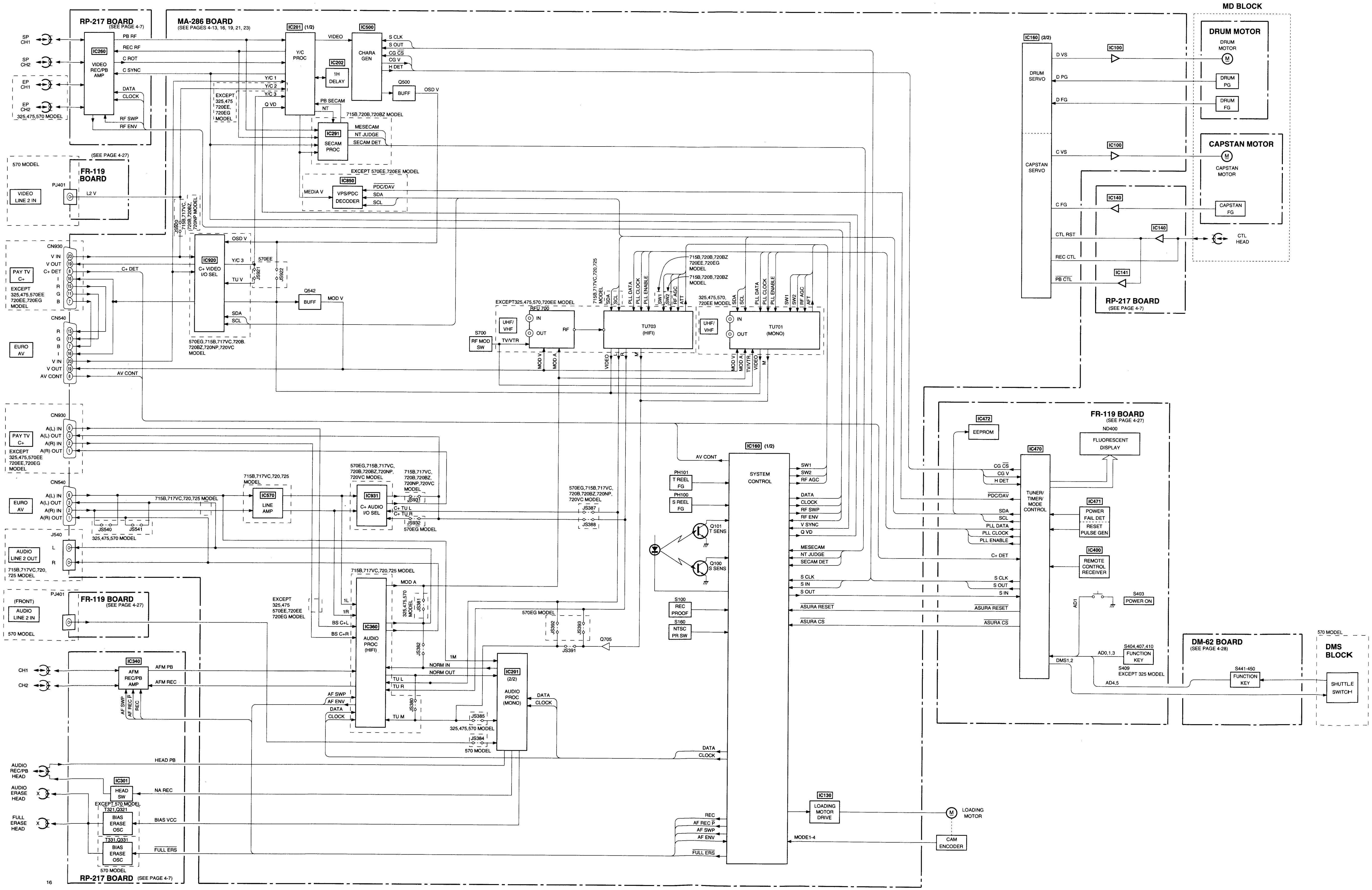
2-6. CIRCUIT BOARDS LOCATION



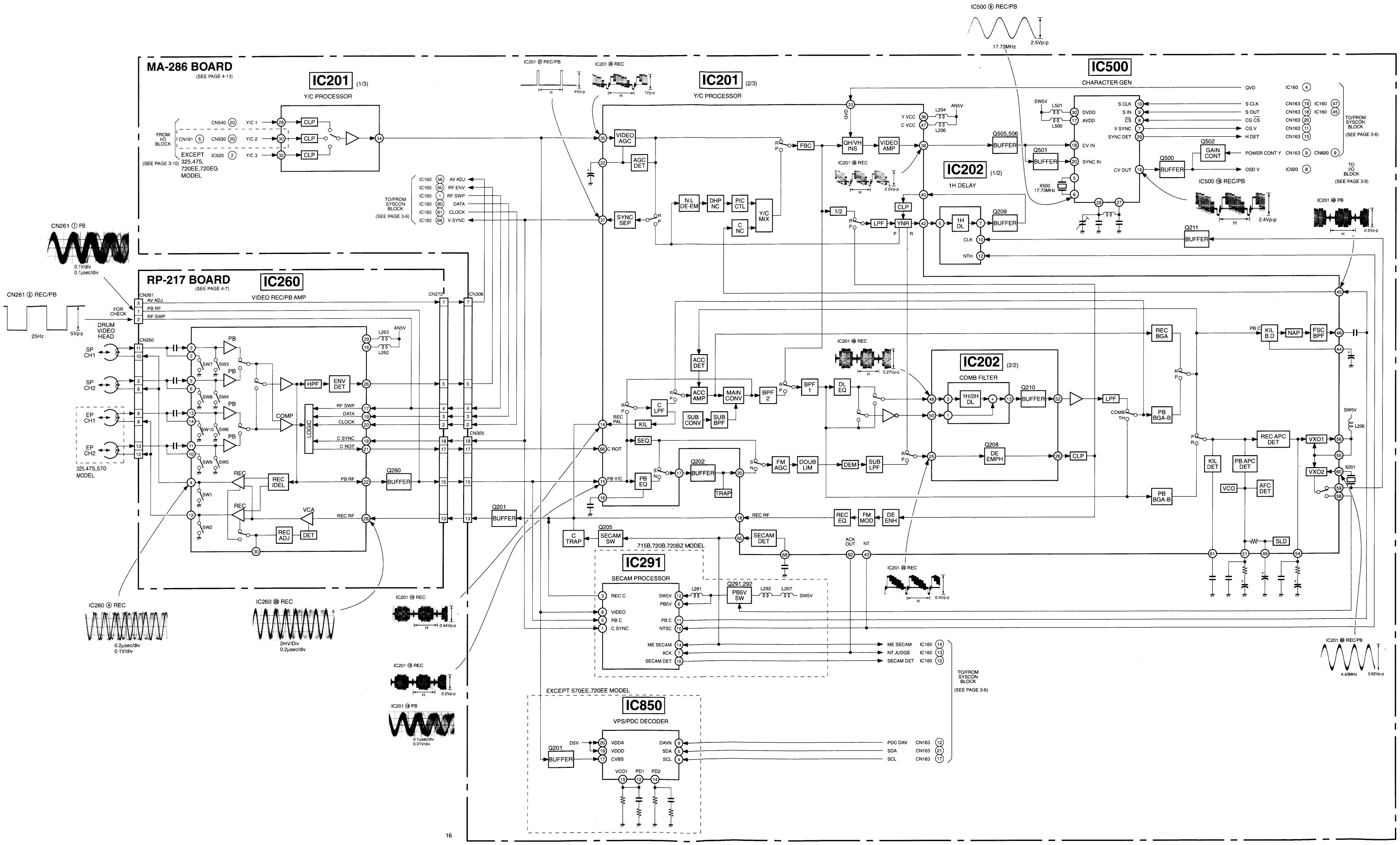
MA-286
(VIDEO,AUDIO
SERVO/SYSTEM CONTROL,
TUNER)
RP-217
(HEAD AMP)
FR-119
(MODE CONTROL)
DM-62
(OPERATION SWITCHES)
PS-385
(POWER SUPPLY)

SECTION 3
BLOCK DIAGRAMS

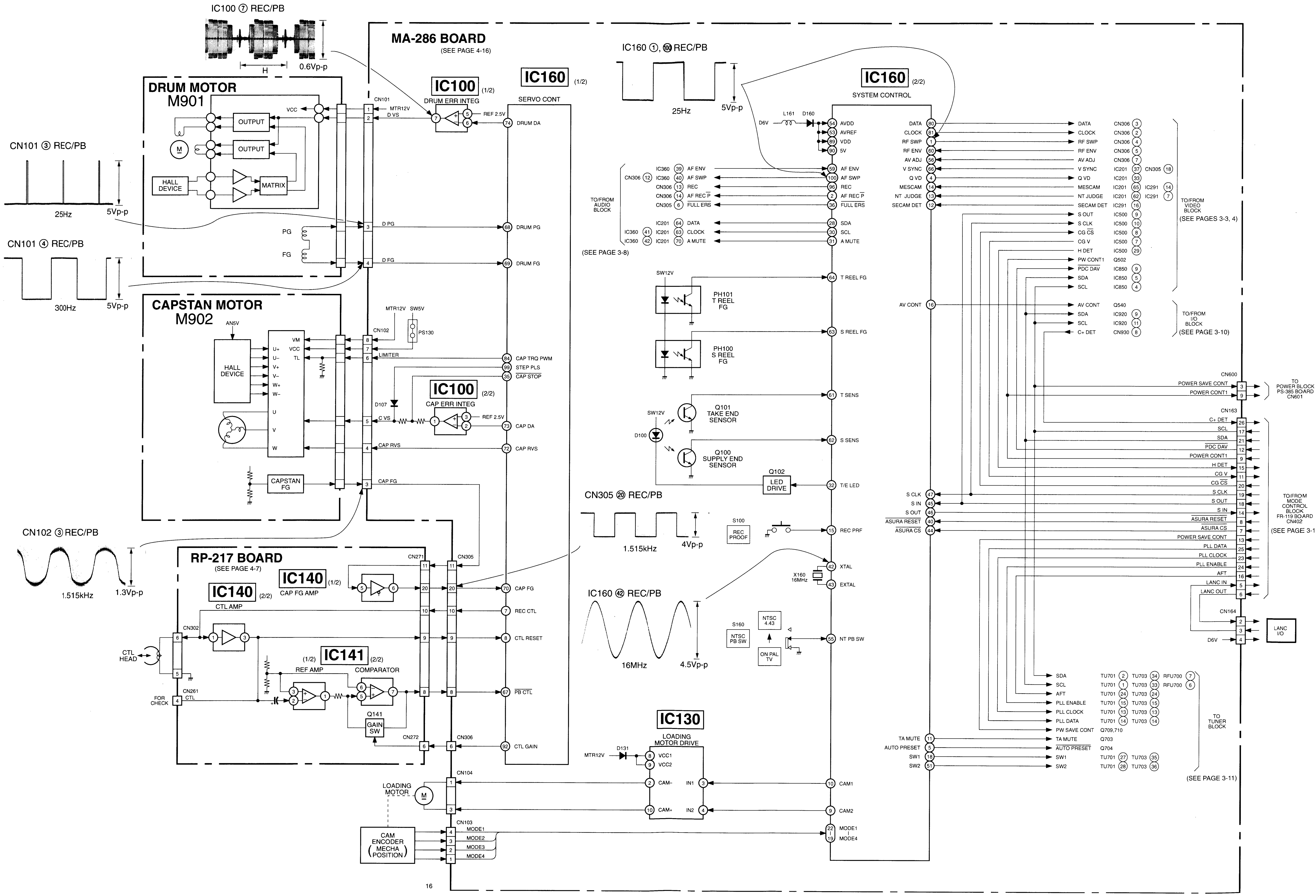
3-1. OVERALL BLOCK DIAGRAM


RP-217 BOARD (SEE PAGE 4-7)
MA-286 BOARD (SEE PAGES 4-13, 16, 19, 21, 23)
SP CH1
SP CH2
EP CH1
EP CH2
325,475,570 MODEL
IC260 VIDEO REC/PB AMP
PB RF
REC RF
C ROT
C SYNC
DATA
CLOCK
RF SWP
RF ENV
IC201 (1/2) Y/C PROC
VIDEO
IC500 CHARA GEN
S CLK
S OUT
CG CS
CG V
H DET
IC202 1H DELAY
Q500 BUFF
OSD V
Y/C 1
Y/C 2
Y/C 3
Q VD
PB SECAM
NT
EXCEPT 325,475 720EE, 720EG MODEL
715B,720B,720BZ MODEL
IC291 SECAM PROC
MESECAM
NT JUDGE
SECAM DET
EXCEPT 570EE,720EE MODEL
IC850 VPS/PDC DECODER
MEDIA V
PDC/DAV
SDA
SCL
570 MODEL
FR-119 BOARD (SEE PAGE 4-27)
VIDEO LINE 2 IN
PJ401
L2 V
CN930
V IN
V OUT
C+ DET
PAY TV C+
EXCEPT 325,475,570EE 720EE,720EG MODEL
CN540
EURO AV
AV CONT
IC920 C+ VIDEO I/O SEL
570EG,715B,717VC,720B, 720BZ,720NP,720VC MODEL
570EE
JS921
JS922
Q542 BUFF
MOD V
TU V
EXCEPT325,475,570,720EE MODEL
RFU 700
UHF/VHF
IN
OUT
RF
S700 RF MOD SW
TV/VTR
MOD V
MOD A
715B,717VC,720,725 MODEL
TU703 (HIFI)
715B,720B,720BZ 720EE,720EG MODEL
325,475,570, 720EE MODEL
TU701 (MONO)
PLL DATA
PLL CLOCK
PLL ENABLE
SW1
SW2
RF AGC
ATT
AFT
A(L) IN
A(L) OUT
A(R) IN
A(R) OUT
JS540
JS541
325,475,570 MODEL
715B,717VC,720,725 MODEL
IC570 LINE AMP
570EG,715B,717VC, 720B,720BZ,720NP, 720VC MODEL
IC931 C+ AUDIO I/O SEL
JS931
JS932
C+ TU L
C+ TU R
570EG MODEL
JS387
JS388
J540
AUDIO LINE 2 OUT
715B,717VC,720, 725 MODEL
(FRONT) AUDIO LINE 2 IN
EXCEPT 325,475 570EE,720EE 720EG MODEL
IC360 AUDIO PROC (HIFI)
BS C+L
BS C+R
JS381
JS382
JS380
JS392
JS393
JS391
Q705
NORM IN
NORM OUT
TU L
TU R
TU M
IC201 (2/2) AUDIO PROC (MONO)
JS385
JS384
570 MODEL
CH1
CH2
IC340 AFM REC/PB AMP
AFM PB
AFM REC
AF SWP
AF ENV
AF REC P
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
HEAD PB
IC301 HEAD SW
NA REC
EXCEPT 570 MODEL T321,Q321 BIAS ERASE OSC
BIAS VCC
T331,Q331 BIAS ERASE OSC
FULL ERS
IC160 (1/2) SYSTEM CONTROL
AV CONT
PH101 T REEL FG
PH100 S REEL FG
Q101 T SENS
Q100 S SENS
V SYNC
S IN
ASURA RESET
ASURA CS
S100 REC PROOF
S160 NTSC PR SW
REC
IC130 LOADING MOTOR DRIVE
LOADING MOTOR
CAM ENCODER
MODE1-4
MD BLOCK
DRUM MOTOR
IC160 (2/2) DRUM SERVO
CAPSTAN SERVO
IC100
D VS
D PG
D FG
DRUM PG
DRUM FG
CAPSTAN MOTOR
C VS
C FG
CAPSTAN FG
IC140
CTL RST
REC CTL
PB CTL
IC141
CTL HEAD
RP-217 BOARD (SEE PAGE 4-7)
FR-119 BOARD (SEE PAGE 4-27)
IC472 EEPROM
ND400 FLUORESCENT DISPLAY
IC470 TUNER/ TIMER/ MODE CONTROL
IC471 POWER FAIL DET RESET PULSE GEN
IC400 REMOTE CONTROL RECEIVER
S403 POWER ON
S404,407,410 FUNCTION KEY
S409 EXCEPT 325 MODEL
AD0,1,3
AD4,5
AD1
DMS1,2
DM-62 BOARD (SEE PAGE 4-28)
S441-450 FUNCTION KEY
570 MODEL DMS BLOCK
SHUTTLE SWITCH
16

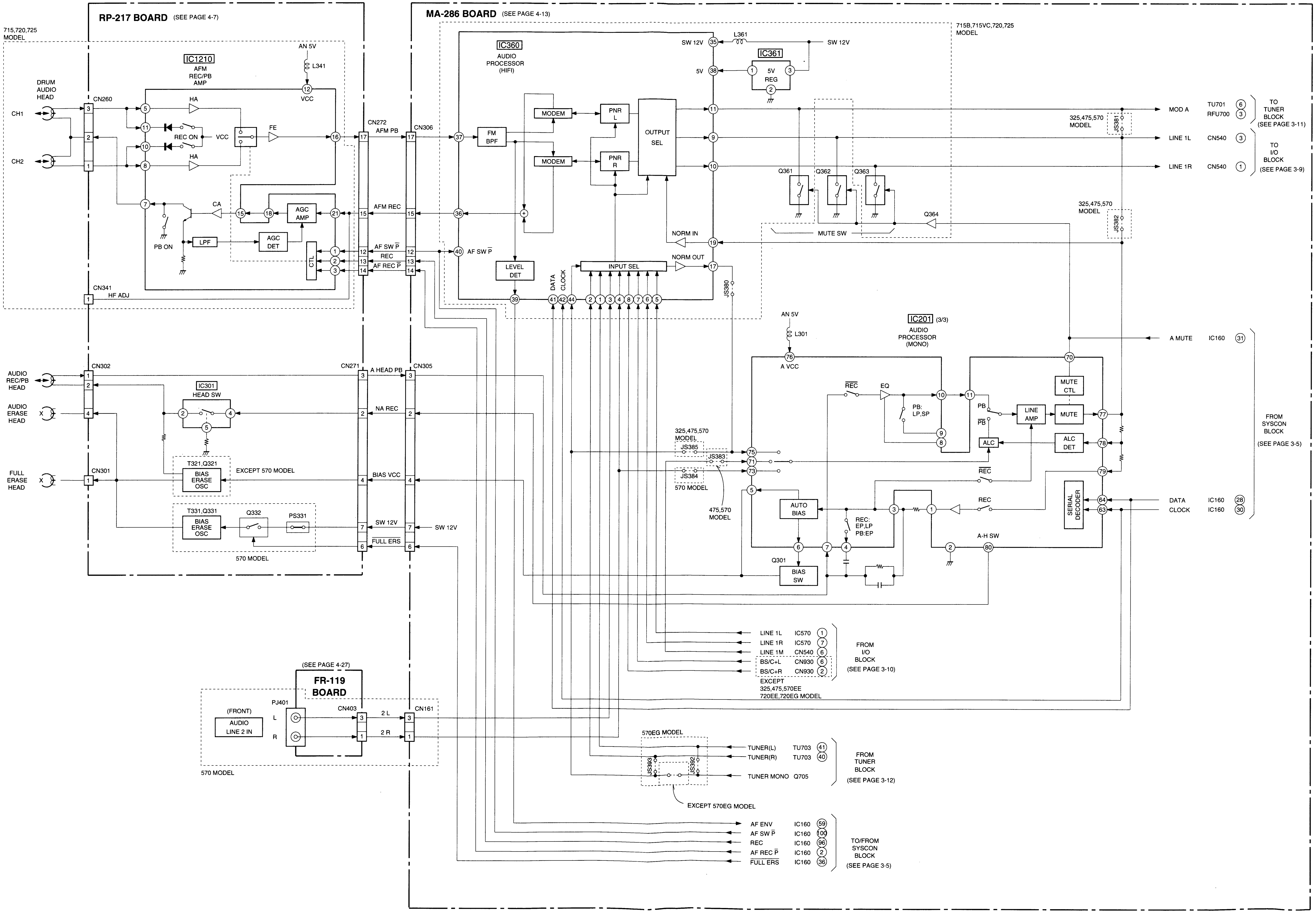
3-2. VIDEO BLOCK DIAGRAM


MA-286 BOARD
(SEE PAGE 4-13)
IC201 (1/3)
Y/C PROCESSOR
IC201 (2/3)
Y/C PROCESSOR
IC500
CHARACTER GEN
IC202 (1/2)
1H DELAY
IC202 (2/2)
COMB FILTER
RP-217 BOARD
(SEE PAGE 4-7)
IC260
VIDEO REC/PB AMP
IC291
SECAM PROCESSOR
IC850
VPS/PDC DECODER
EXCEPT 570EE,720EE MODEL
715B,720B,720BZ MODEL
FROM I/O BLOCK (SEE PAGE 3-10)
EXCEPT 325,475, 720EE,720EG MODEL
TO/FROM SYSCON BLOCK (SEE PAGE 3-6)
TO I/O BLOCK (SEE PAGE 3-9)
CLP
VIDEO AGC
AGC DET
SYNC SEP
N.L DE-EM
DHP NC
PIC CTL
Y/C MIX
C NC
FBC
QH/VH INS
VIDEO AMP
BUFFER
1/2
LPF
YNR
1H DL
GAIN CONT
ACC DET
ACC AMP
MAIN CONV
BPF 2
BPF 1
DL EQ
C LPF
KIL
SUB CONV
SUB BPF
SEQ
PB EQ
BUFFER
TRAP
FM AGC
DOUB LIM
DEM
SUB LPF
1H/2H DL
DE EMPH
REC BGA
PB BGA-B
KIL B.D
NAP
FSC BPF
REC APC DET
VXO1
VXO2
KIL DET
PB APC DET
VCO
AFC DET
SLD
REC EQ
FM MOD
DE ENH
C TRAP
SECAM SW
SECAM DET
PB5V SW
HPF
ENV DET
COMP
LOGIC
REC IDEL
REC ADJ
DET
VCA
DRUM VIDEO HEAD
SP CH1
SP CH2
EP CH1
EP CH2
325,475,570 MODEL
CN261 ① PB
CN261 ② REC/PB
25Hz
5Vp-p
0.1V/div
0.1μsec/div
IC260 ④ REC
0.2μsec/div
0.1V/div
IC260 ㉘ REC
2mV/Div
0.2μsec/div
IC201 ㉗ REC/PB
4Vp-p
IC201 ㊱ REC
1Vp-p
IC500 ⑥ REC/PB
17.73MHz
2.5Vp-p
IC500 ⑯ REC/PB
2.4Vp-p
IC201 ㊳ REC
2.5Vp-p
IC201 ㊾ PB
0.5Vp-p
IC201 ㊽ REC
0.27Vp-p
IC201 ⑮ REC
0.44Vp-p
IC201 ⑱ REC
0.2Vp-p
IC201 ⑮ PB
0.1μsec/div
0.01V/div
IC201 ㊸ REC
0.5Vp-p
IC201 ㊻ REC/PB
4.43MHz
0.62Vp-p
ME SECAM IC160 ⑭
NT JUDGE IC160 ⑬
SECAM DET IC160 ⑫
PDC DAV CN163 ⑫
SDA CN163 ㉑
SCL CN163 ⑰
16

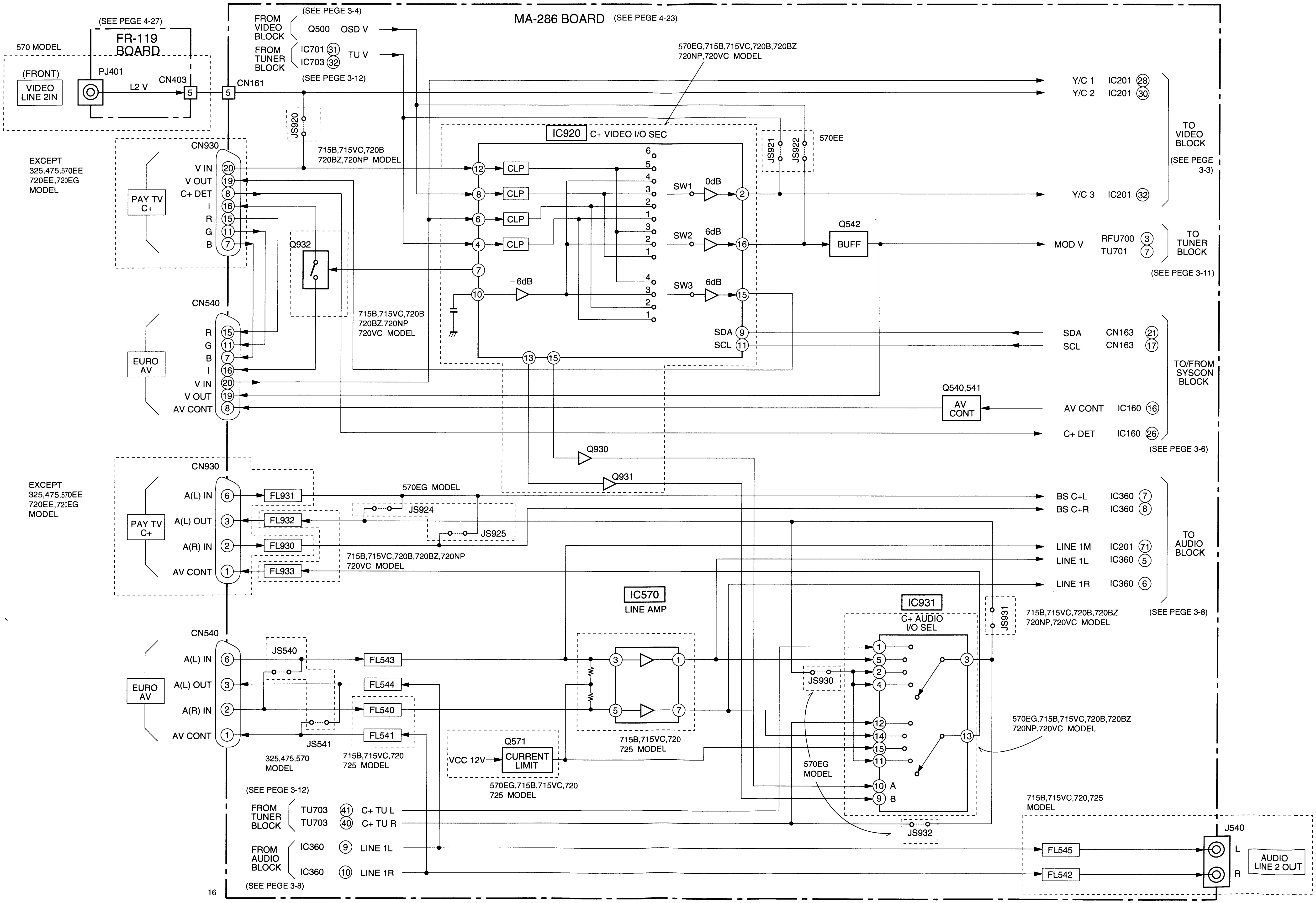
3-3. SERVO, SYSTEM CONTROL BLOCK DIAGRAM


IC100 ⑦ REC/PB
H
0.6Vp-p
MA-286 BOARD
(SEE PAGE 4-16)
DRUM MOTOR
M901
OUTPUT
OUTPUT
HALL DEVICE
MATRIX
VCC
PG
FG
CN101 ③ REC/PB
25Hz
5Vp-p
CN101 ④ REC/PB
300Hz
5Vp-p
CN101
MTR12V
D VS
D PG
D FG
IC100 (1/2)
DRUM ERR INTEG
REF 2.5V
IC160 (1/2)
SERVO CONT
DRUM DA
DRUM PG
DRUM FG
CAPSTAN MOTOR
M902
AN5V
HALL DEVICE
U+
U−
V+
V−
W+
W−
U
V
W
VM
VCC
TL
CAPSTAN FG
CN102
MTR12V
SW5V
PS130
LIMITER
C VS
CAP RVS
CAP FG
D107
IC100 (2/2)
CAP ERR INTEG
REF 2.5V
CAP TRQ PWM
STEP PLS
CAP STOP
CAP DA
CAP RVS
CN102 ③ REC/PB
1.515kHz
1.3Vp-p
RP-217 BOARD
(SEE PAGE 4-7)
IC140 (1/2)
CAP FG AMP
IC140 (2/2)
CTL AMP
IC141 (1/2)
REF AMP
IC141 (2/2)
COMPARATOR
Q141
GAIN SW
CN271
CN272
CN302
CN261
CTL
CTL HEAD
FOR CHECK
CN305
CN306
CAP FG
REC CTL
CTL RESET
PB CTL
CTL GAIN
IC160 ①, ⑩⑩ REC/PB
25Hz
5Vp-p
IC160 (2/2)
SYSTEM CONTROL
D6V
L161
D160
AVDD
AVREF
VDD
5V
TO/FROM AUDIO BLOCK
(SEE PAGE 3-8)
IC360 39 AF ENV
CN306 12 IC360 40 AF SWP
CN306 13 REC
CN306 14 AF REC P
CN305 6 FULL ERS
IC201 64 DATA
IC360 41 IC201 63 CLOCK
IC360 42 IC201 70 A MUTE
SDA
SCL
A MUTE
SW12V
PH101 T REEL FG
T REEL FG
PH100 S REEL FG
S REEL FG
Q101 TAKE END SENSOR
T SENS
D100
Q100 SUPPLY END SENSOR
S SENS
Q102 LED DRIVE
T/E LED
CN305 ⑳ REC/PB
1.515kHz
4Vp-p
S100
REC PROOF
REC PRF
X160 16MHz
XTAL
EXTAL
IC160 ㊷ REC/PB
16MHz
4.5Vp-p
S160
NTSC PB SW
NTSC 4.43
ON PAL TV
NT PB SW
IC130
LOADING MOTOR DRIVE
MTR12V
D131
VCC1
VCC2
CAM−
CAM+
IN1
IN2
CAM1
CAM2
CN104
LOADING MOTOR
CN103
CAM ENCODER (MECHA POSITION)
MODE1
MODE2
MODE3
MODE4
DATA 80 → DATA CN306 3
CLOCK 81 → CLOCK CN306 2
RF SWP 1 → RF SWP CN306 4
RF ENV 60 → RF ENV CN306 5
AV ADJ 56 → AV ADJ CN306 7
V SYNC 66 → V SYNC IC201 37 CN305 18
Q VD 4 → Q VD IC201 33
MESCAM 14 → MESCAM IC201 65 IC291 14
NT JUDGE 13 → NT JUDGE IC201 62 IC291 7
SECAM DET 12 → SECAM DET IC291 16
S OUT IC500 9
S CLK IC500 10
CG CS IC500 8
CG V IC500 7
H DET IC500 29
PW CONT1 Q502
PDC DAV IC850 9
SDA IC850 5
SCL IC850 4
TO/FROM VIDEO BLOCK
(SEE PAGES 3-3, 4)
AV CONT 16 → AV CONT Q540
SDA IC920 9
SCL IC920 11
C+ DET CN930 8
TO/FROM I/O BLOCK
(SEE PAGE 3-10)
CN600
POWER SAVE CONT 3
POWER CONT1 9
TO POWER BLOCK PS-385 BOARD CN601
CN163
C+ DET 26
SCL 17
SDA 21
PDC DAV 12
POWER CONT1 9
H DET 15
CG V 11
CG CS 20
S CLK 19
S OUT 18
S IN 14
ASURA RESET 8
ASURA CS 7
POWER SAVE CONT 13
PLL DATA 25
PLL CLOCK 23
PLL ENABLE 24
AFT 16
LANC IN 5
LANC OUT 6
TO/FROM MODE CONTROL BLOCK FR-119 BOARD CN402
(SEE PAGE 3-13)
S CLK 47
S IN 45
S OUT 46
ASURA RESET 40
ASURA CS 44
CN164
D6V
LANC I/O
SDA TU701 2 TU703 34 RFU700 7
SCL TU701 1 TU703 33 RFU700 6
AFT TU701 24 TU703 24
PLL ENABLE TU701 15 TU703 15
PLL CLOCK TU701 13 TU703 13
PLL DATA TU701 14 TU703 14
PW SAVE CONT Q709,710
TA MUTE 11 → TA MUTE Q703
AUTO PRESET 5 → AUTO PRESET Q704
SW1 18 → SW1 TU701 27 TU703 35
SW2 51 → SW2 TU701 28 TU703 36
TO TUNER BLOCK
(SEE PAGE 3-11)
16

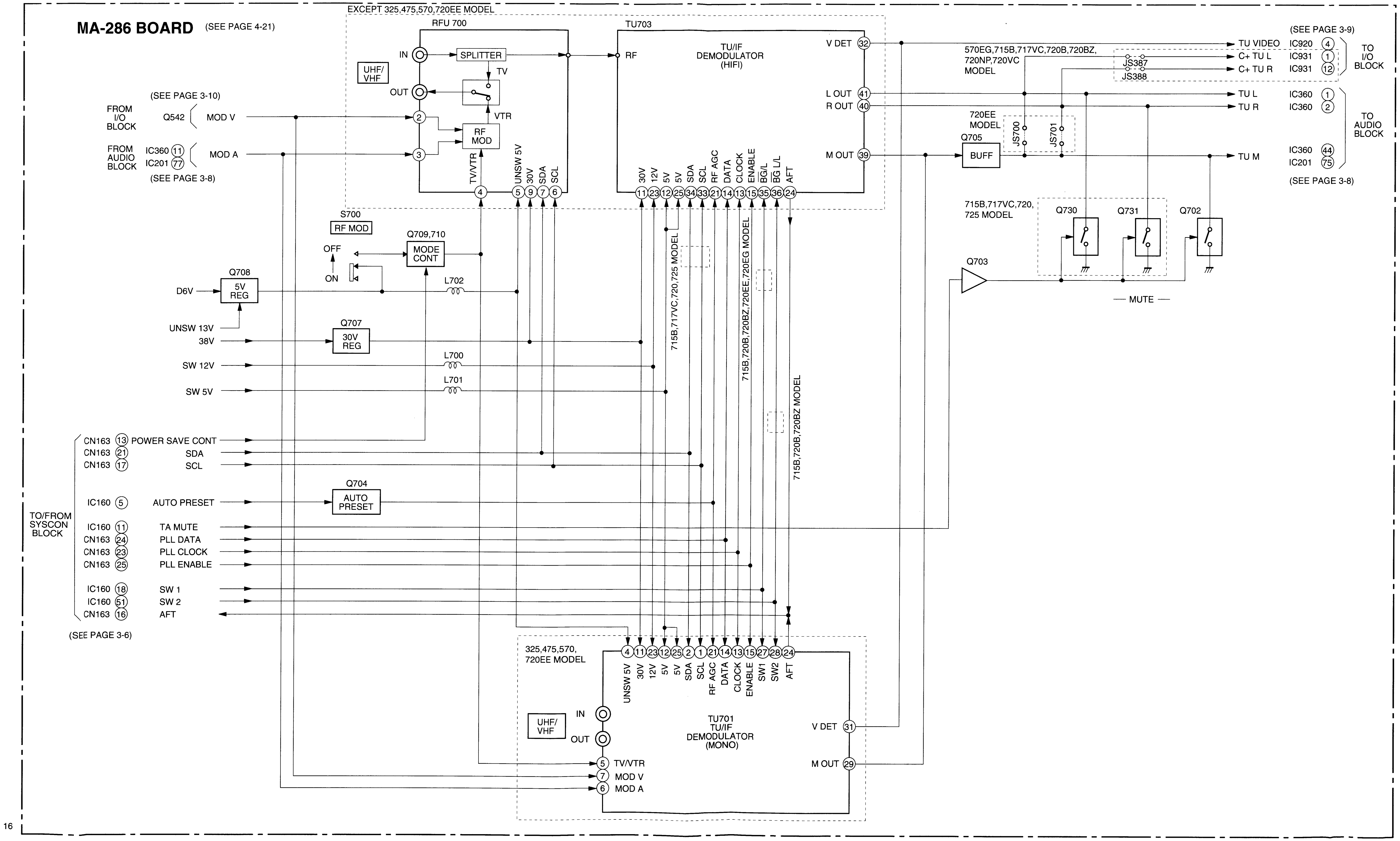
3-4. AUDIO BLOCK DIAGRAM


RP-217 BOARD (SEE PAGE 4-7)
715,720,725 MODEL
IC1210 AFM REC/PB AMP
AN 5V
L341
VCC
DRUM AUDIO HEAD
CH1
CH2
CN260
HA
REC ON
FE
CA
AGC AMP
AGC DET
LPF
PB ON
CTL
CN341
HF ADJ
CN272
AFM PB
AFM REC
AF SW P
REC
AF REC P
MA-286 BOARD (SEE PAGE 4-13)
715B,715VC,720,725 MODEL
CN306
IC360 AUDIO PROCESSOR (HIFI)
FM BPF
MODEM
PNR L
PNR R
OUTPUT SEL
LEVEL DET
INPUT SEL
NORM IN
NORM OUT
DATA
CLOCK
JS380
SW 12V
L361
IC361 5V REG
5V
Q361
Q362
Q363
Q364
MUTE SW
325,475,570 MODEL
JS381
JS382
MOD A
TU701
RFU700
TO TUNER BLOCK (SEE PAGE 3-11)
LINE 1L
LINE 1R
CN540
TO I/O BLOCK (SEE PAGE 3-9)
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
CN302
CN301
IC301 HEAD SW
T321,Q321 BIAS ERASE OSC
EXCEPT 570 MODEL
T331,Q331 BIAS ERASE OSC
Q332
PS331
570 MODEL
CN271
A HEAD PB
NA REC
BIAS VCC
SW 12V
FULL ERS
CN305
AN 5V
L301
A VCC
IC201 (3/3) AUDIO PROCESSOR (MONO)
A MUTE
IC160
REC
EQ
PB: LP,SP
PB
LINE AMP
MUTE
MUTE CTL
ALC
ALC DET
SERIAL DECODER
DATA
CLOCK
FROM SYSCON BLOCK (SEE PAGE 3-5)
325,475,570 MODEL
JS385
JS383
JS384
570 MODEL
475,570 MODEL
AUTO BIAS
REC: EP,LP
PB:EP
Q301 BIAS SW
A-H SW
LINE 1L IC570
LINE 1R IC570
LINE 1M CN540
BS/C+L CN930
BS/C+R CN930
EXCEPT 325,475,570EE 720EE,720EG MODEL
FROM I/O BLOCK (SEE PAGE 3-10)
(SEE PAGE 4-27)
FR-119 BOARD
(FRONT)
AUDIO LINE 2 IN
PJ401
L
R
CN403
2 L
2 R
CN161
570 MODEL
570EG MODEL
JS393
JS392
TUNER(L) TU703
TUNER(R) TU703
TUNER MONO Q705
FROM TUNER BLOCK (SEE PAGE 3-12)
EXCEPT 570EG MODEL
AF ENV IC160
AF SW P IC160
REC IC160
AF REC P IC160
FULL ERS IC160
TO/FROM SYSCON BLOCK (SEE PAGE 3-5)

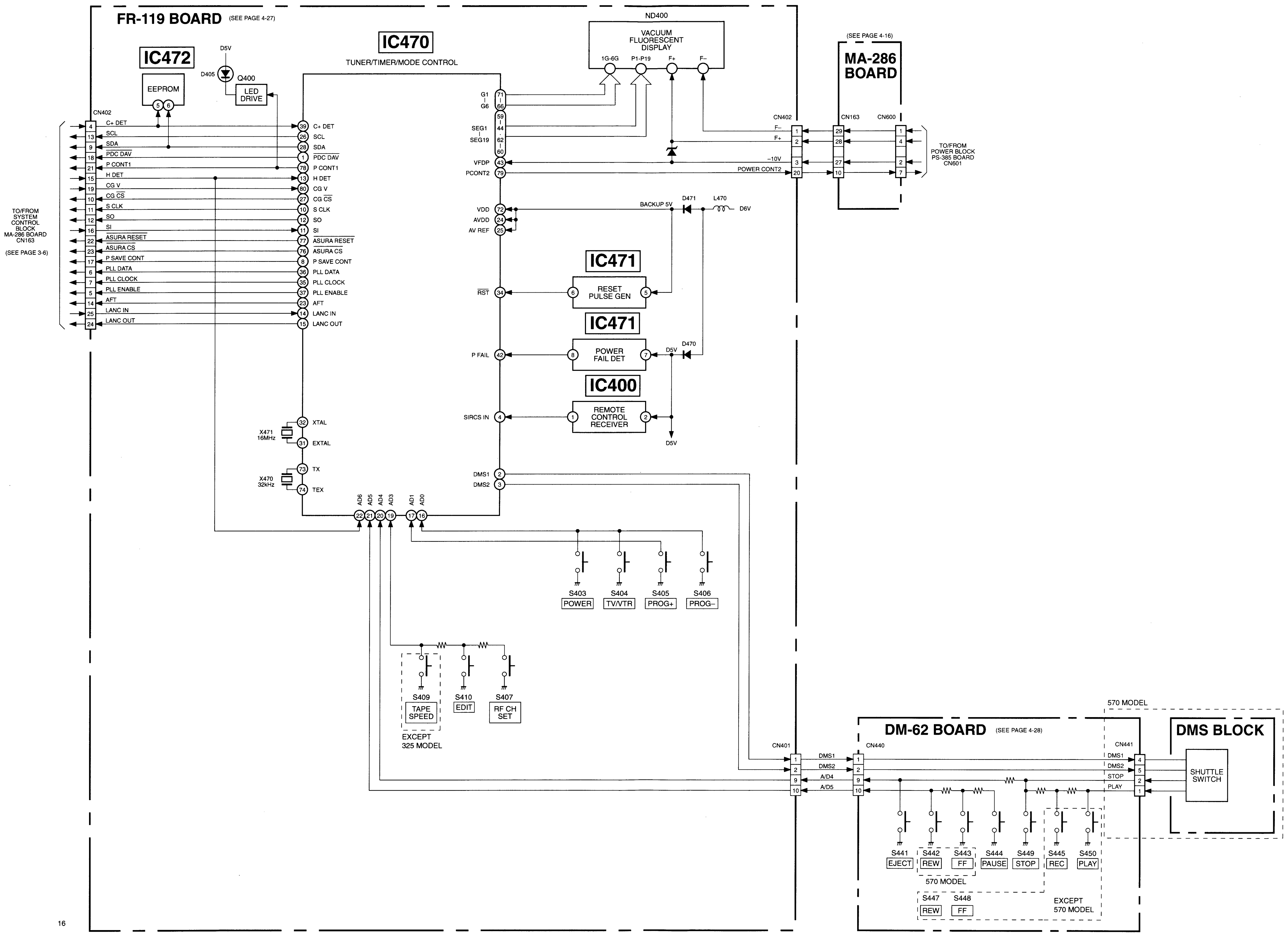
3-5. I/O BLOCK DIAGRAM


(SEE PEGE 4-27)
FR-119 BOARD
570 MODEL
(FRONT)
VIDEO LINE 2IN
PJ401
L2 V
CN403
CN161
MA-286 BOARD (SEE PEGE 4-23)
(SEE PEGE 3-4)
FROM VIDEO BLOCK
Q500 OSD V
FROM TUNER BLOCK
IC701 ㉛
IC703 ㉜
TU V
(SEE PEGE 3-12)
JS920
715B,715VC,720B
720BZ,720NP MODEL
570EG,715B,715VC,720B,720BZ
720NP,720VC MODEL
IC920 C+ VIDEO I/O SEC
CLP
SW1 0dB
SW2 6dB
SW3 6dB
−6dB
SDA ⑨
SCL ⑪
JS921
JS922
570EE
Q542
BUFF
Y/C 1 IC201 ㉘
Y/C 2 IC201 ㉚
Y/C 3 IC201 ㉜
TO VIDEO BLOCK
(SEE PEGE 3-3)
MOD V RFU700 ③
TU701 ⑦
TO TUNER BLOCK
(SEE PEGE 3-11)
SDA CN163 ㉑
SCL CN163 ⑰
TO/FROM SYSCON BLOCK
Q540,541
AV CONT
AV CONT IC160 ⑯
C+ DET IC160 ㉖
(SEE PEGE 3-6)
EXCEPT
325,475,570EE
720EE,720EG
MODEL
CN930
PAY TV C+
V IN ⑳
V OUT ⑲
C+ DET ⑧
I ⑯
R ⑮
G ⑪
B ⑦
Q932
715B,715VC,720B
720BZ,720NP
720VC MODEL
CN540
EURO AV
R ⑮
G ⑪
B ⑦
I ⑯
V IN ⑳
V OUT ⑲
AV CONT ⑧
Q930
Q931
CN930
A(L) IN ⑥
A(L) OUT ③
A(R) IN ②
AV CONT ①
FL931
FL932
FL930
FL933
570EG MODEL
JS924
JS925
715B,715VC,720B,720BZ,720NP
720VC MODEL
BS C+L IC360 ⑦
BS C+R IC360 ⑧
LINE 1M IC201 ㉛
LINE 1L IC360 ⑤
LINE 1R IC360 ⑥
TO AUDIO BLOCK
(SEE PEGE 3-8)
IC570
LINE AMP
IC931
C+ AUDIO I/O SEL
JS931
715B,715VC,720B,720BZ
720NP,720VC MODEL
CN540
EURO AV
A(L) IN ⑥
A(L) OUT ③
A(R) IN ②
AV CONT ①
JS540
JS541
FL543
FL544
FL540
FL541
325,475,570
MODEL
715B,715VC,720
725 MODEL
Q571
VCC 12V
CURRENT LIMIT
570EG,715B,715VC,720
725 MODEL
715B,715VC,720
725 MODEL
JS930
570EG
MODEL
570EG,715B,715VC,720B,720BZ
720NP,720VC MODEL
A
B
JS932
(SEE PEGE 3-12)
FROM TUNER BLOCK
TU703 ㊶ C+ TU L
TU703 ㊵ C+ TU R
FROM AUDIO BLOCK
IC360 ⑨ LINE 1L
IC360 ⑩ LINE 1R
(SEE PEGE 3-8)
715B,715VC,720,725
MODEL
J540
FL545
FL542
L
R
AUDIO LINE 2 OUT
16

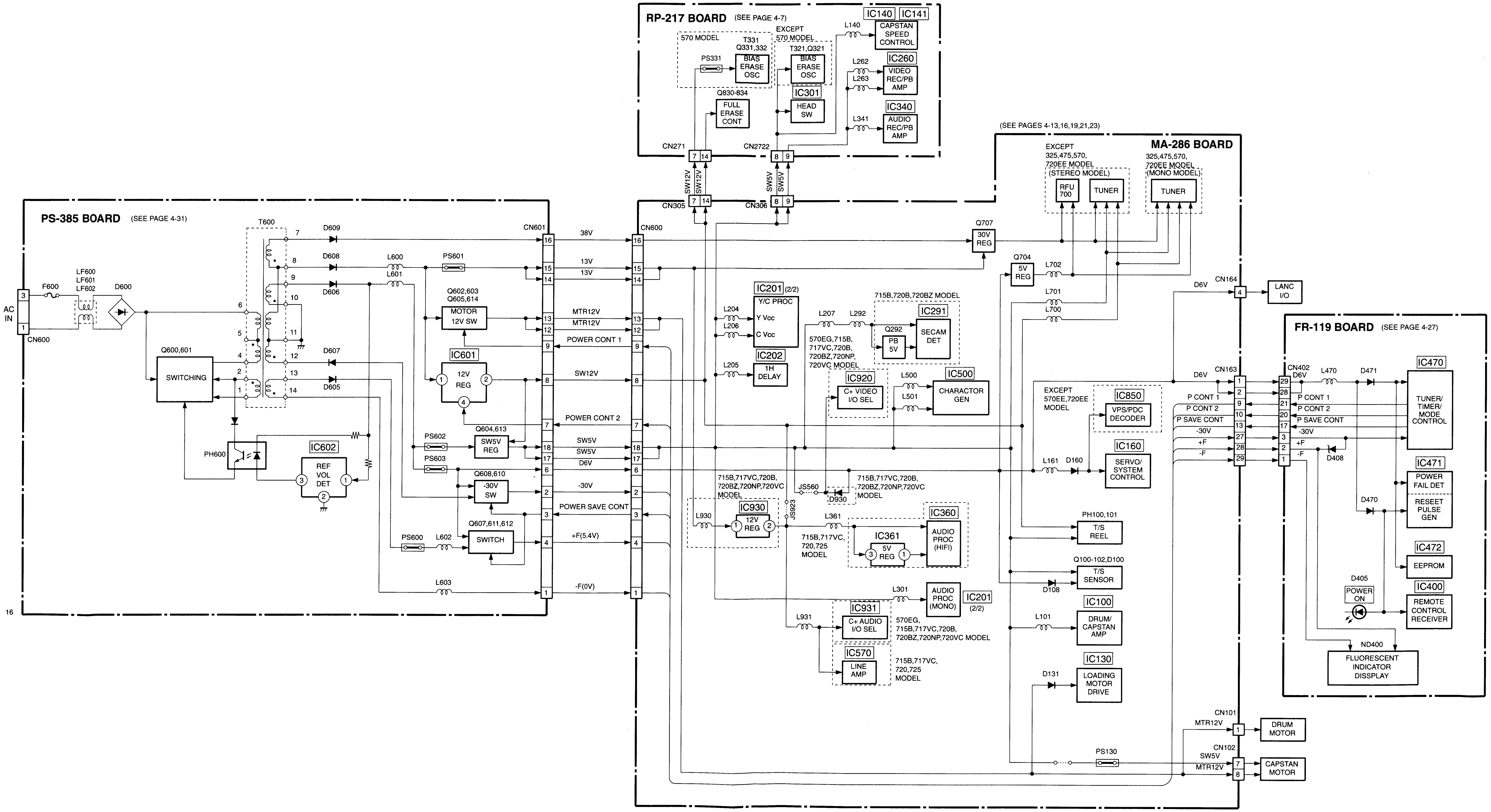
3-6. TUNER BLOCK DIAGRAM


MA-286 BOARD (SEE PAGE 4-21)
EXCEPT 325,475,570,720EE MODEL
RFU 700
IN
SPLITTER
UHF/ VHF
OUT
TV
VTR
RF MOD
TV/VTR
UNSW 5V
30V
SDA
SCL
TU703
RF
TU/IF DEMODULATOR (HIFI)
V DET 32
L OUT 41
R OUT 40
M OUT 39
30V 12V 5V 5V SDA SCL RF AGC DATA CLOCK ENABLE BG/L BG L/L AFT
11 23 12 25 34 33 21 14 13 15 35 36 24
(SEE PAGE 3-10)
FROM I/O BLOCK
Q542
MOD V
FROM AUDIO BLOCK
IC360 11
IC201 77
MOD A
(SEE PAGE 3-8)
S700
RF MOD
OFF
ON
Q709,710
MODE CONT
Q708
D6V
5V REG
L702
UNSW 13V
38V
Q707
30V REG
L700
SW 12V
L701
SW 5V
715B,717VC,720,725 MODEL
715B,720B,720BZ,720EE,720EG MODEL
715B,720B,720BZ MODEL
CN163 13 POWER SAVE CONT
CN163 21 SDA
CN163 17 SCL
Q704
IC160 5 AUTO PRESET
AUTO PRESET
TO/FROM SYSCON BLOCK
IC160 11 TA MUTE
CN163 24 PLL DATA
CN163 23 PLL CLOCK
CN163 25 PLL ENABLE
IC160 18 SW 1
IC160 51 SW 2
CN163 16 AFT
(SEE PAGE 3-6)
570EG,715B,717VC,720B,720BZ, 720NP,720VC MODEL
JS387
JS388
720EE MODEL
Q705
BUFF
JS700
JS701
(SEE PAGE 3-9)
TU VIDEO IC920 4
C+ TU L IC931 1
C+ TU R IC931 12
TO I/O BLOCK
TU L IC360 1
TU R IC360 2
TO AUDIO BLOCK
TU M IC360 44
IC201 75
(SEE PAGE 3-8)
715B,717VC,720, 725 MODEL
Q730
Q731
Q702
Q703
MUTE
325,475,570, 720EE MODEL
4 11 23 12 25 2 1 21 14 13 15 27 28 24
UNSW 5V 30V 12V 5V 5V SDA SCL RF AGC DATA CLOCK ENABLE SW1 SW2 AFT
UHF/ VHF
IN
OUT
TU701 TU/IF DEMODULATOR (MONO)
V DET 31
M OUT 29
5 TV/VTR
7 MOD V
6 MOD A
16

3-7. MODE CONTROL BLOCK DIAGRAM

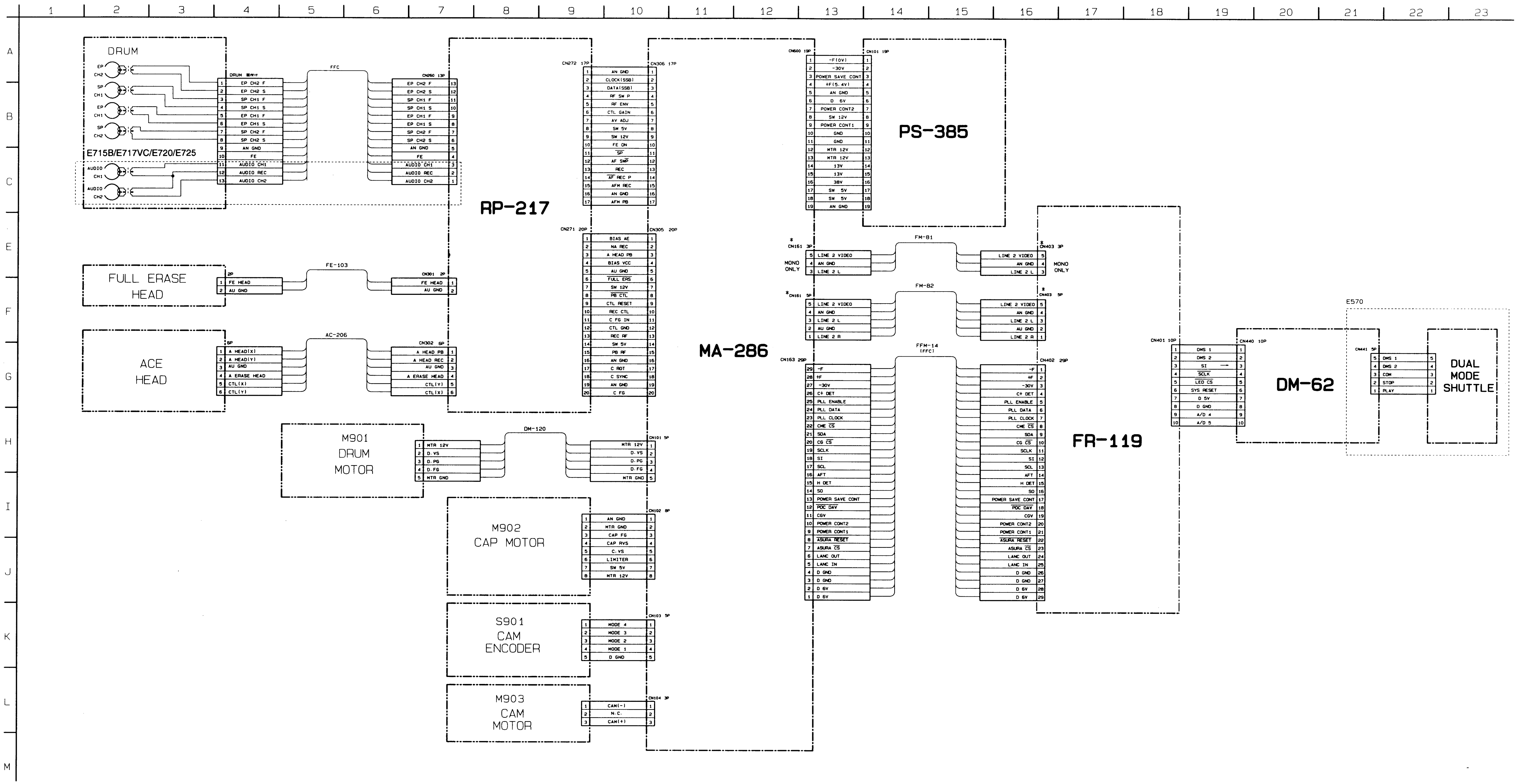

FR-119 BOARD (SEE PAGE 4-27)
IC472
EEPROM
5
6
D5V
D405
Q400
LED DRIVE
IC470
TUNER/TIMER/MODE CONTROL
CN402
TO/FROM SYSTEM CONTROL BLOCK MA-286 BOARD CN163
(SEE PAGE 3-6)
4 C+ DET 39
13 SCL 26
9 SDA 28
18 PDC DAV 1
21 P CONT1 78
15 H DET 13
19 CG V 80
10 CG CS 27
11 S CLK 10
12 SO 12
16 SI 11
22 ASURA RESET 77
23 ASURA CS 76
17 P SAVE CONT 8
6 PLL DATA 36
7 PLL CLOCK 35
5 PLL ENABLE 37
14 AFT 23
25 LANC IN 14
24 LANC OUT 15
X471 16MHz
32 XTAL
31 EXTAL
X470 32kHz
73 TX
74 TEX
AD6 AD5 AD4 AD3 AD1 AD0
22 21 20 19 17 16
G1 – G6 71 – 66
SEG1 – SEG19 59 – 44 · 62 – 60
VFDP 43
PCONT2 79
VDD 72
AVDD 24
AV REF 25
RST 34
P FAIL 42
SIRCS IN 4
DMS1 2
DMS2 3
ND400
VACUUM FLUORESCENT DISPLAY
1G-6G
P1-P19
F+
F–
BACKUP 5V
D471
L470
D6V
IC471
RESET PULSE GEN
6
5
IC471
POWER FAIL DET
8
7
D5V
D470
IC400
REMOTE CONTROL RECEIVER
1
2
D5V
CN402
F– 1
F+ 2
–10V 3
POWER CONT2 20
(SEE PAGE 4-16)
MA-286 BOARD
CN163
29
28
27
10
CN600
1
4
2
7
TO/FROM POWER BLOCK PS-385 BOARD CN601
S403 POWER
S404 TV/VTR
S405 PROG+
S406 PROG–
S409 TAPE SPEED
S410 EDIT
S407 RF CH SET
EXCEPT 325 MODEL
CN401
1 DMS1 1
2 DMS2 2
9 A/D4 9
10 A/D5 10
DM-62 BOARD (SEE PAGE 4-28)
CN440
CN441
DMS1 4
DMS2 5
STOP 2
PLAY 1
570 MODEL
DMS BLOCK
SHUTTLE SWITCH
S441 EJECT
S442 REW
S443 FF
570 MODEL
S444 PAUSE
S449 STOP
S445 REC
S450 PLAY
S447 REW
S448 FF
EXCEPT 570 MODEL
16

3-8. POWER SUPPLY BLOCK DIAGRAM


RP-217 BOARD (SEE PAGE 4-7)
570 MODEL
T331 Q331,332
PS331
BIAS ERASE OSC
EXCEPT 570 MODEL
T321,Q321
BIAS ERASE OSC
IC301
HEAD SW
Q830-834
FULL ERASE CONT
IC140 IC141
L140
CAPSTAN SPEED CONTROL
L262
L263
IC260
VIDEO REC/PB AMP
L341
IC340
AUDIO REC/PB AMP
CN271
CN2722
SW12V
SW5V
CN305
CN306
(SEE PAGES 4-13,16,19,21,23)
MA-286 BOARD
EXCEPT 325,475,570, 720EE MODEL (STEREO MODEL)
RFU 700
TUNER
325,475,570, 720EE MODEL (MONO MODEL)
TUNER
PS-385 BOARD (SEE PAGE 4-31)
AC IN
CN600
F600
LF600 LF601 LF602
D600
T600
D609
D608
D606
D607
D605
L600
L601
PS601
Q600,601
SWITCHING
PH600
IC602
REF VOL DET
Q602,603 Q605,614
MOTOR 12V SW
IC601
12V REG
Q604,613
PS602
PS603
SW5V REG
Q608,610
-30V SW
Q607,611,612
PS600
L602
SWITCH
L603
CN601
38V
13V
13V
MTR12V
MTR12V
POWER CONT 1
SW12V
POWER CONT 2
SW5V
SW5V
D6V
-30V
POWER SAVE CONT
+F(5.4V)
-F(0V)
16
CN600
Q707
30V REG
Q704
5V REG
L702
L701
L700
IC201 (2/2)
Y/C PROC
Y Vcc
C Vcc
L204
L206
L205
IC202
1H DELAY
L207
L292
715B,720B,720BZ MODEL
IC291
Q292
PB 5V
SECAM DET
570EG,715B, 717VC,720B, 720BZ,720NP, 720VC MODEL
IC920
C+ VIDEO I/O SEL
L500
L501
IC500
CHARACTOR GEN
715B,717VC,720B, 720BZ,720NP,720VC MODEL
JS560
D930
JS923
715B,717VC,720B, 720BZ,720NP,720VC MODEL
L930
IC930
12V REG
L361
715B,717VC, 720,725 MODEL
IC361
5V REG
IC360
AUDIO PROC (HIFI)
L301
AUDIO PROC (MONO)
IC201 (2/2)
L931
IC931
C+ AUDIO I/O SEL
570EG, 715B,717VC,720B, 720BZ,720NP,720VC MODEL
IC570
LINE AMP
715B,717VC, 720,725 MODEL
EXCEPT 570EE,720EE MODEL
IC850
VPS/PDC DECODER
L161
D160
IC160
SERVO/ SYSTEM CONTROL
PH100,101
T/S REEL
Q100-102,D100
T/S SENSOR
D108
IC100
L101
DRUM/ CAPSTAN AMP
IC130
D131
LOADING MOTOR DRIVE
CN164
D6V
LANC I/O
CN163
D6V
P CONT 1
P CONT 2
P SAVE CONT
-30V
+F
-F
CN101
MTR12V
DRUM MOTOR
PS130
CN102
SW5V
MTR12V
CAPSTAN MOTOR
FR-119 BOARD (SEE PAGE 4-27)
CN402
D6V
L470
D471
P CONT 1
P CONT 2
P SAVE CONT
-30V
+F
-F
D408
IC470
TUNER/ TIMER/ MODE CONTROL
IC471
POWER FAIL DET
D470
RESEET PULSE GEN
IC472
EEPROM
IC400
REMOTE CONTROL RECEIVER
D405
POWER ON
ND400
FLUORESCENT INDICATOR DISSPLAY

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


DRUM
E715B/E717VC/E720/E725
FULL ERASE HEAD
ACE HEAD
M901 DRUM MOTOR
M902 CAP MOTOR
S901 CAM ENCODER
M903 CAM MOTOR
FFC
FE-103
AC-206
DM-120
RP-217
MA-286
PS-385
FM-81
FM-82
FFM-14 (FFC)
FR-119
DM-62
DUAL MODE SHUTTLE
E570
MONO ONLY

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- ▬ : Pattern from the side which enables seeing.

Caution :

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Pattern face side: (Component Side)	parts on the parts face side seen from the parts face are indicated.

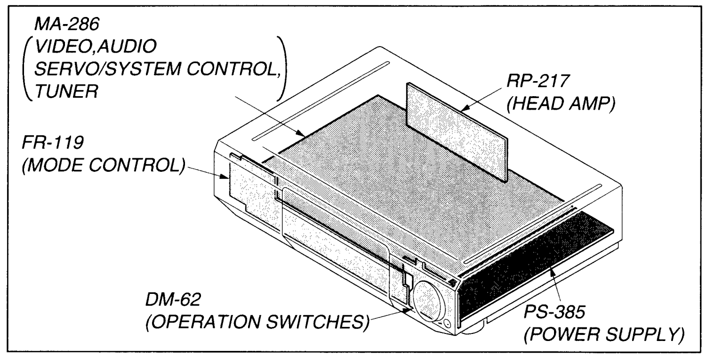
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistor are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ, : 1000kΩ.
- All capacitors are in µF unless otherwise noted. pF : µ µF. 50V or less are not indicated except for electrolytics and tantalums.
- ☐ : panel designation.
- △ : internal component.
- ▬ : B+Line. *
- ▬ ▬ ▬ : B+Line. *
- ⇨ : IN/OUT direction of (+,–) B LINE. *
- Circled numbers refer to waveforms. *
- Readings are taken with a PAL color-bar signal input.
- Voltage are dc between ground and measurement points.*
- Rradings are taken with a dijital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

When indicating parts by reference number, please include the board name.

- * : indicated by the color red.

RP-217 BOARD

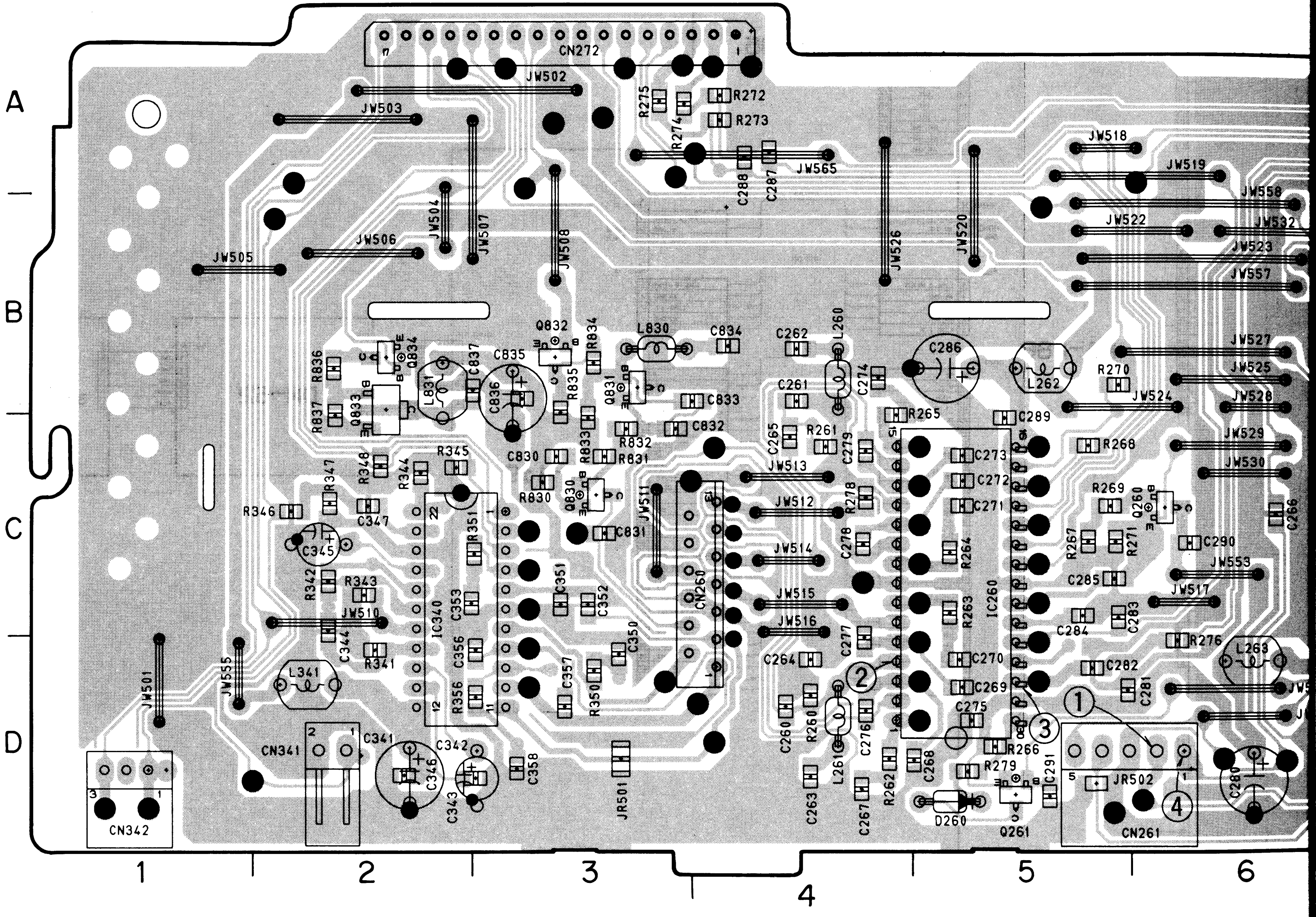
CN260	C-4
CN261	D-5
CN271	A-8
CN272	A-3
CN301	D-9
CN302	D-9
CN341	D-2
IC140	C-7
IC141	B-7
IC260	C-5
IC301	C-8
IC340	C-2
Q141	C-7
Q260	C-6
Q321	C-9
Q331	A-9
Q332	B-9


MA-286
(VIDEO,AUDIO
SERVO/SYSTEM CONTROL,
TUNER)
RP-217
(HEAD AMP)
FR-119
(MODE CONTROL)
DM-62
(OPERATION SWITCHES)
PS-385
(POWER SUPPLY)

RP-217 (HEAD AMP) PRINTED WIRING BOARD
— Ref. No. RP-217 Board; 1,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

RP-217 BOARD (CONDUCTOR SIDE)


A
B
C
D
1
2
3
4
5
6
CN272
JW502
JW503
R275
R274
R272
R273
C288
C287
JW565
JW518
JW519
JW558
JW522
JW532
JW523
JW557
JW504
JW507
JW508
JW526
JW520
JW505
JW506
Q832
L830
C834
C262
L260
C286
L262
R270
JW527
JW525
JW524
JW528
JW529
JW530
R836
Q834
C837
C835
C836
R835
R834
Q831
C833
C832
C261
R265
C289
R268
R269
Q260
R837
Q833
L831
R345
C830
R833
R832
R831
R830
Q830
C831
JW511
C265
R261
C279
JW513
JW512
JW514
JW515
JW516
C273
C272
C271
R264
R263
IC260
R267
R271
C290
JW553
C285
JW517
C284
C283
R276
L263
R347
R346
C347
R348
R344
R351
C345
R342
R343
JW510
C344
R341
IC340
C353
C356
R356
C351
C352
C350
C357
R350
CN260
C264
C277
C278
C276
C270
C269
C275
C282
C281
R266
R279
C291
C268
R262
C267
C263
L261
C260
R260
JR502
CN261
C280
D260
Q261
JR501
C358
C342
C343
C346
C341
CN341
L341
JW501
JW555
CN342
①
②
③
④

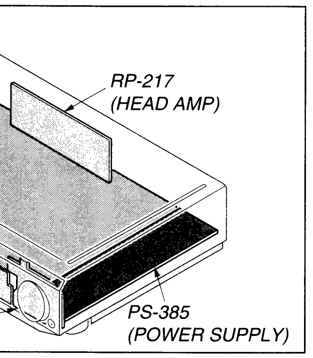
RP-217 (HEAD AMP) PRINTED WIRING BOARD

— Ref. No. RP-217 Board; 1,000 Series —

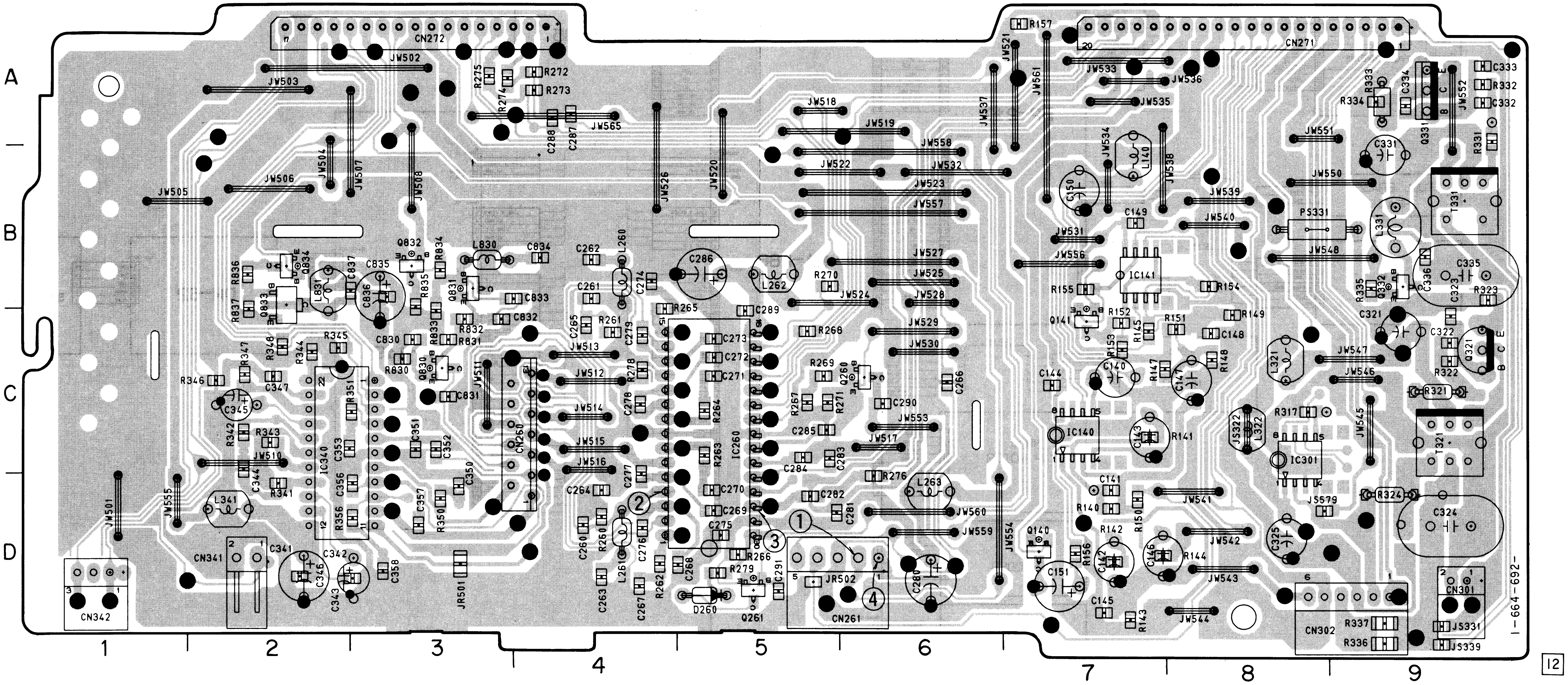
There are few cases that the part printed on this diagram isn't mounted in this model.

RP-217 BOARD

CN260	C-4
CN261	D-5
CN271	A-8
CN272	A-3
CN301	D-9
CN302	D-9
CN341	D-2
IC140	C-7
IC141	B-7
IC260	C-5
IC301	C-8
IC340	C-2
Q141	C-7
Q260	C-6
Q321	C-9
Q331	A-9
Q332	B-9

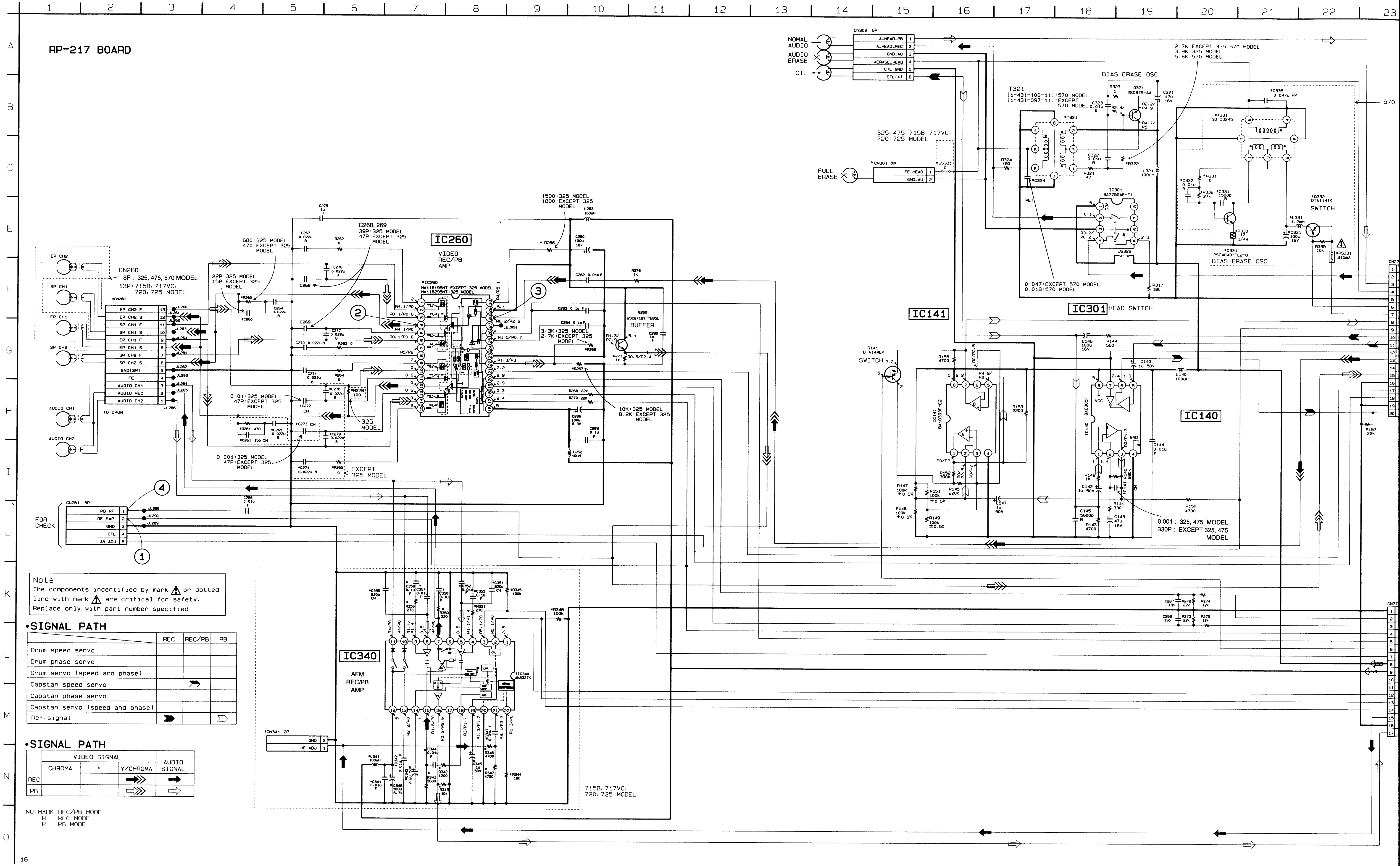

RP-217
(HEAD AMP)
PS-385
(POWER SUPPLY)

RP-217 BOARD (CONDUCTOR SIDE)


A
B
C
D
1
2
3
4
5
6
7
8
9
CN272
CN271
CN260
CN261
CN341
CN342
CN301
CN302
IC140
IC141
IC260
IC301
IC340
Q141
Q260
Q261
Q321
Q331
Q332
Q830
Q831
Q832
Q833
Q834
Q140
D260
L140
L260
L261
L262
L263
L321
L322
L331
L341
L830
L831
T321
T331
PS331
JR501
JR502
①
②
③
④
1-664-692-
12

RP-217 (HEAD AMP) SCHEMATIC DIAGRAM

— Ref. No. RP-217 Board; 1,000 Series —


RP-217 BOARD
IC260
VIDEO REC/PB AMP
IC340
AFM REC/PB AMP
IC301
HEAD SWITCH
IC141
IC140
Q260 2SC2712Y-TE85L BUFFER
Q141 DTA144EK SWITCH
BIAS ERASE OSC
Q331 2SC4040-TL2-Q
Q332 DTA114TK SWITCH
T321
CN260 8P: 325, 475, 570 MODEL 13P: 715B, 717VC, 720, 725 MODEL
CN261 5P
FOR CHECK
PB RF
RF SWP
GND
CTL
AV ADJ
CN302 6P
NOMAL AUDIO
AUDIO ERASE
CTL
FULL ERASE
CN301 2P
CN341 2P
EP CH2
SP CH1
EP CH1
SP CH2
AUDIO CH1
AUDIO CH2
TO DRUM
715B, 717VC, 720, 725 MODEL
325, 475, 715B, 717VC, 720, 725 MODEL
0.001: 325, 475, MODEL 330P: EXCEPT 325, 475 MODEL
10K: 325 MODEL 8.2K: EXCEPT 325 MODEL
EXCEPT 325 MODEL
570

Note:
The components indentified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

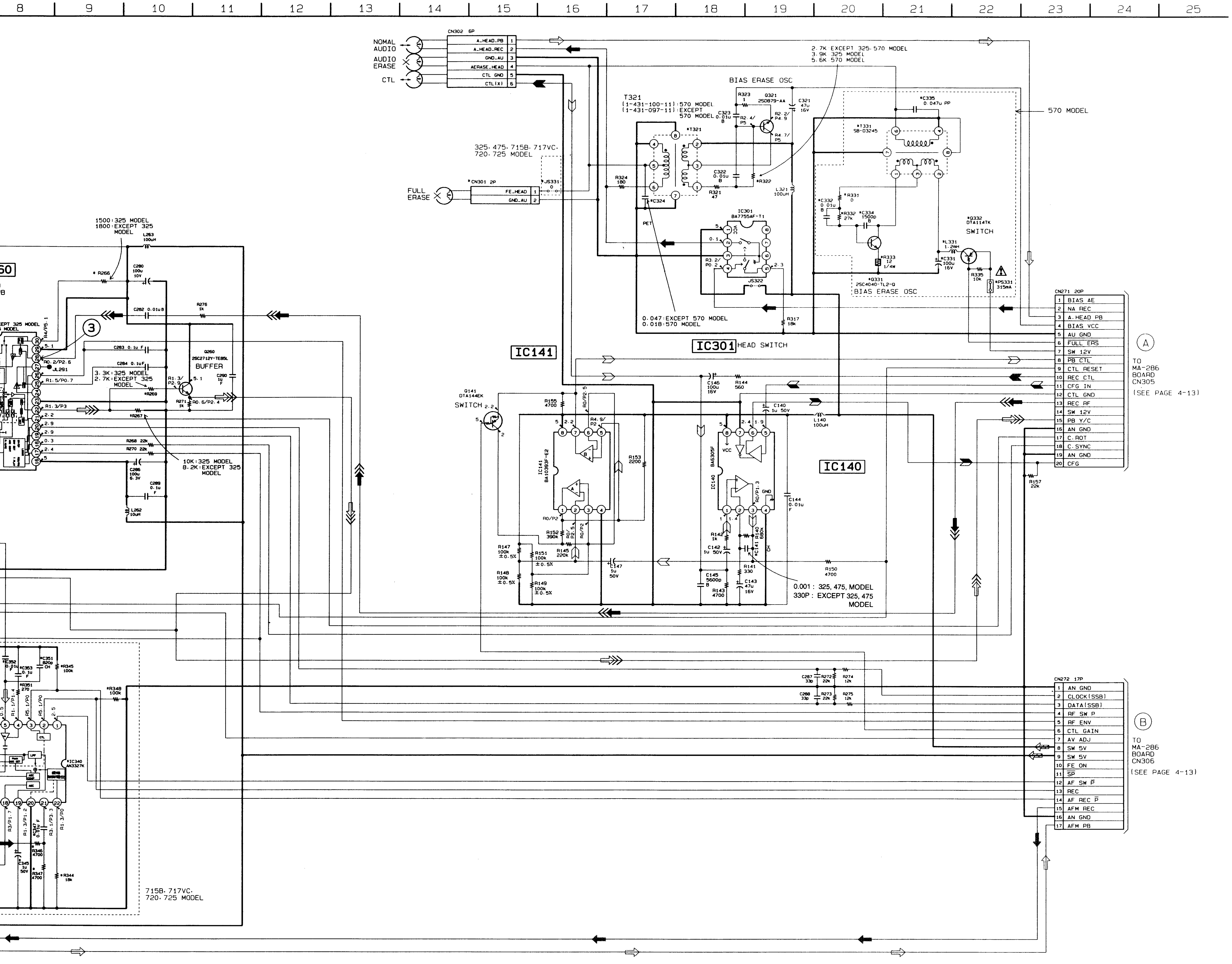
•SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo		➡	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref.signal	➡		⇨

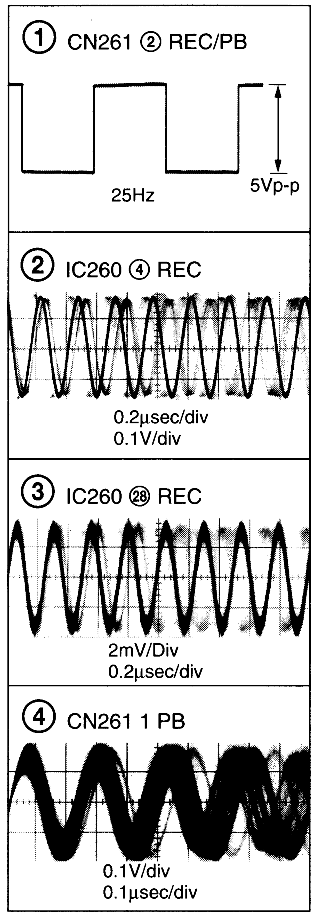
•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
NOMAL AUDIO
AUDIO ERASE
CTL
CN302 6P
A.HEAD.PB
A.HEAD.REC
GND.AU
AERASE.HEAD
CTL GND
CTL(X)
FULL ERASE
CN301 2P
FE.HEAD
GND.AU
325·475·715B·717VC·720·725 MODEL
JS331
T321
[1-431-100-11]:570 MODEL
[1-431-097-11]:EXCEPT 570 MODEL
BIAS ERASE OSC
2.7K EXCEPT 325·570 MODEL
3.9K 325 MODEL
5.6K 570 MODEL
Q321 2SD879-AA
570 MODEL
T331 SB-03245
C335 0.047u PP
IC301 BA7755AF-T1
JS322
Q331 2SC4040-TL2-Q
BIAS ERASE OSC
Q332 DTA114TK
SWITCH
PS331 315mA
0.047:EXCEPT 570 MODEL
0.018:570 MODEL
IC301 HEAD SWITCH
IC141
IC140
Q141 DTA144EK
SWITCH
IC141 BA10393F-E2
IC140 BA6305F
0.001 : 325, 475, MODEL
330P : EXCEPT 325, 475 MODEL
1500:325 MODEL
1800:EXCEPT 325 MODEL
L263 100uH
3
Q260 2SC2712Y-TE85L
BUFFER
3.3K:325 MODEL
2.7K:EXCEPT 325 MODEL
10K:325 MODEL
8.2K:EXCEPT 325 MODEL
IC340 AN3327K
715B·717VC·720·725 MODEL
CN271 20P
1 BIAS AE
2 NA REC
3 A.HEAD PB
4 BIAS VCC
5 AU GND
6 FULL ERS
7 SW 12V
8 PB CTL
9 CTL RESET
10 REC CTL
11 CFG IN
12 CTL GND
13 REC RF
14 SW 12V
15 PB Y/C
16 AN GND
17 C.ROT
18 C.SYNC
19 AN GND
20 CFG
A
TO MA-286 BOARD CN305
(SEE PAGE 4-13)
CN272 17P
1 AN GND
2 CLOCK(SSB)
3 DATA(SSB)
4 RF SW P
5 RF ENV
6 CTL GAIN
7 AV ADJ
8 SW 5V
9 SW 5V
10 FE ON
11 SP
12 AF SW P
13 REC
14 AF REC P
15 AFM REC
16 AN GND
17 AFM PB
B
TO MA-286 BOARD CN306
(SEE PAGE 4-13)

RP-217 BOARD

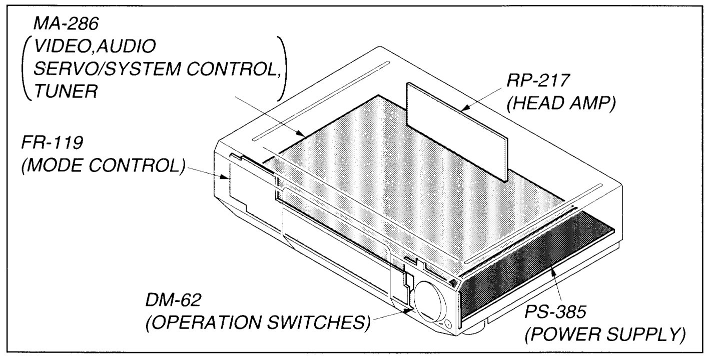

① CN261 ② REC/PB
25Hz
5Vp-p
② IC260 ④ REC
0.2µsec/div
0.1V/div
③ IC260 ㉘ REC
2mV/Div
0.2µsec/div
④ CN261 1 PB
0.1V/div
0.1µsec/div

MA-286 (VIDEO, SERVO/SYSTEM CONTROL, AUDIO, TUNER) PRINTED WIRING BOARD

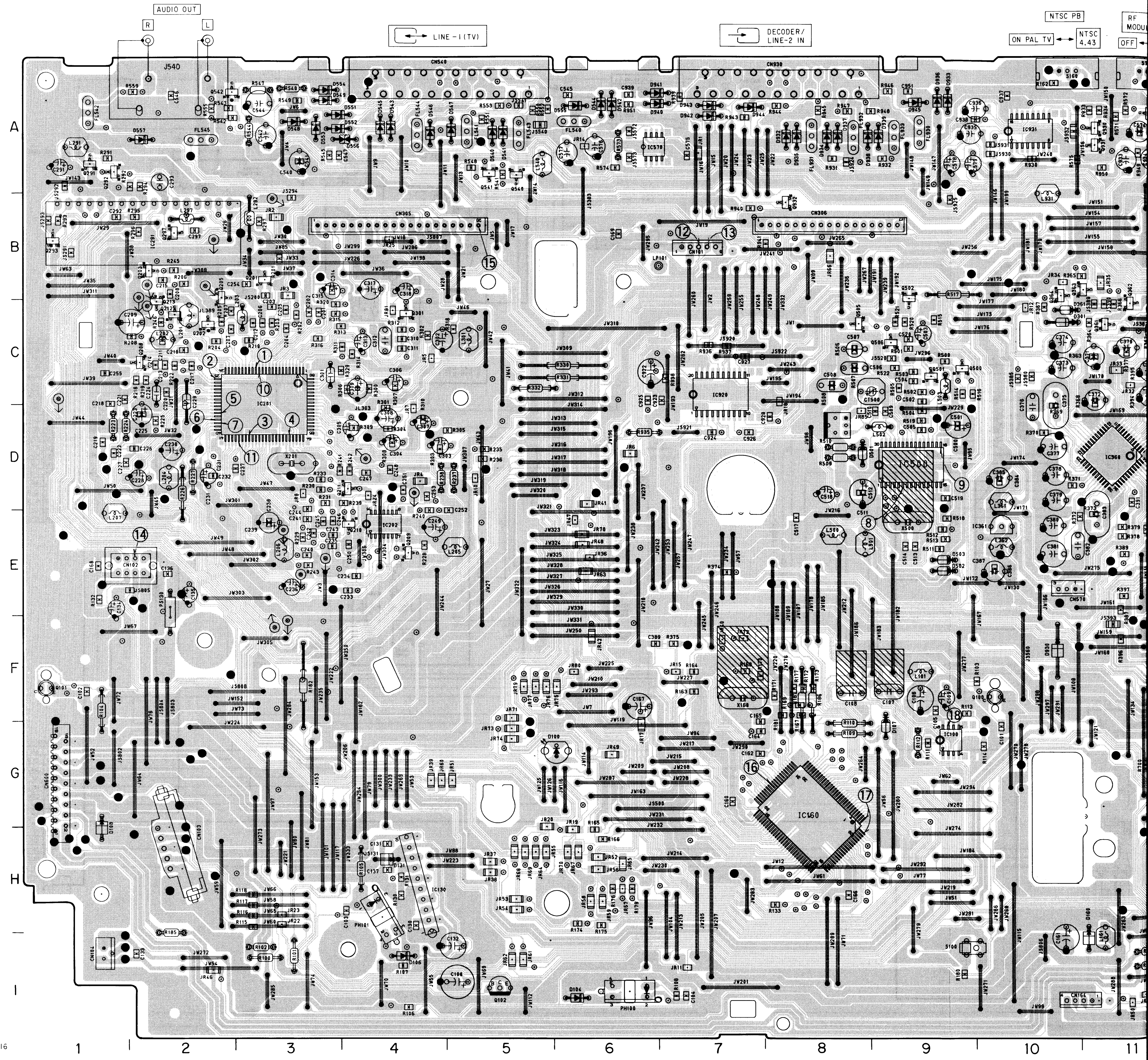
— Ref. No. MA-286 Board; 2,000 Series —

MA-286 BOARD

CN101	B-7	D703	B-12	Q202	C-2
CN102	E-2	D704	A-12	Q203	B-2
CN103	H-2	D930	F-10	Q205	B-2
CN104	I-1	D932	A-8	Q208	C-2
CN161	E-11	D933	A-9	Q209	E-4
CN163	I-12	D934	A-8	Q210	E-4
CN164	I-10	D935	A-8	Q211	D-4
CN305	B-4	D936	A-9	Q291	A-1
CN306	B-8	D937	A-8	Q292	A-1
CN540	A-4	D938	A-9	Q293	B-1
CN600	G-1	D939	A-9	Q301	C-4
CN930	A-8	D940	A-7	Q361	C-11
		D941	A-7	Q362	C-11
D100	G-6	D942	A-7	Q363	B-11
D107	G-9	D943	A-7	Q364	B-10
D108	H-1	D944	A-7	Q500	C-9
D131	H-4	D945	A-9	Q501	C-9
D160	I-11			Q502	B-7
D301	C-10	IC100	G-9	Q505	C-8
D361	C-10	IC130	H-4	Q506	C-9
D501	D-8	IC160	G-8	Q540	A-5
D502	E-9	IC201	C-3	Q541	A-5
D503	E-9	IC202	E-4	Q542	A-2
D540	A-5	IC291	B-2	Q571	A-11
D541	A-5	IC360	D-11	Q702	G-12
D542	A-6	IC361	E-10	Q703	G-11
D543	A-4	IC500	D-9	Q704	E-13
D544	A-6	IC570	A-6	Q705	G-13
D545	A-4	IC850	G-12	Q707	B-12
D546	A-4	IC920	C-7	Q708	A-12
D547	A-5	IC930	B-11	Q709	A-12
D548	A-3	IC931	A-10	Q710	A-12
D549	A-2			Q730	G-12
D551	A-3	PH100	I-6	Q731	G-12
D552	A-3	PH101	H-4	Q850	H-12
D553	A-3			Q930	A-11
D554	A-2	Q100	F-10	Q931	A-11
D700	G-11	Q101	F-1	Q932	B-8
D701	B-12	Q102	I-5		
D702	C-12	Q201	B-3		

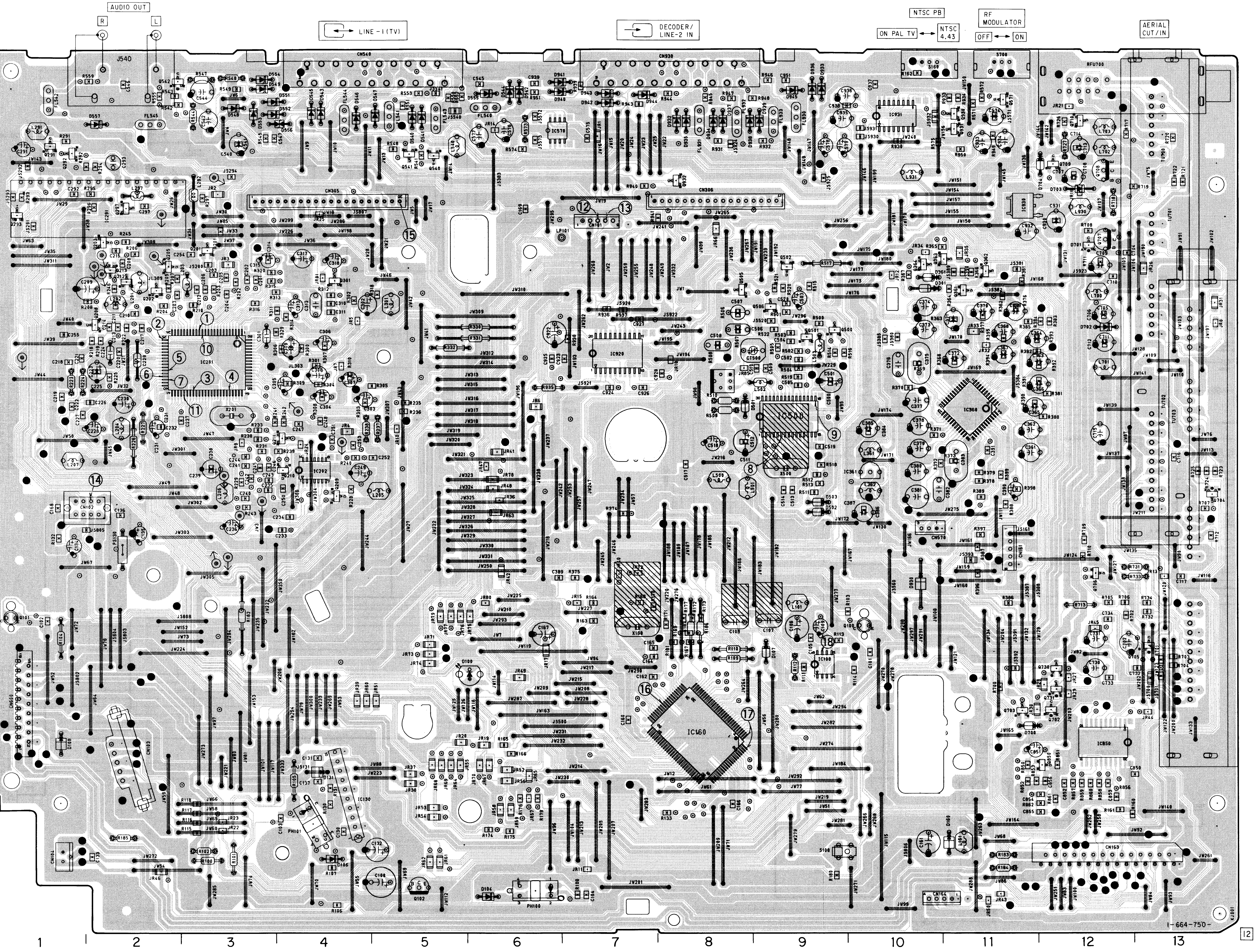

MA-286
(VIDEO,AUDIO
SERVO/SYSTEM CONTROL,
TUNER)
RP-217
(HEAD AMP)
FR-119
(MODE CONTROL)
DM-62
(OPERATION SWITCHES)
PS-385
(POWER SUPPLY)

MA-286 BOARD (CONDUCTOR SIDE)


AUDIO OUT
R
L
LINE-1 (TV)
DECODER/
LINE-2 IN
NTSC PB
ON PAL TV
NTSC
4.43
OFF
RF
MODU
J540
CN540
CN930
CN305
CN306
IC201
IC920
IC500
IC160
IC931
CN102
CN103
CN600
PH101
PH100
X201
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
16

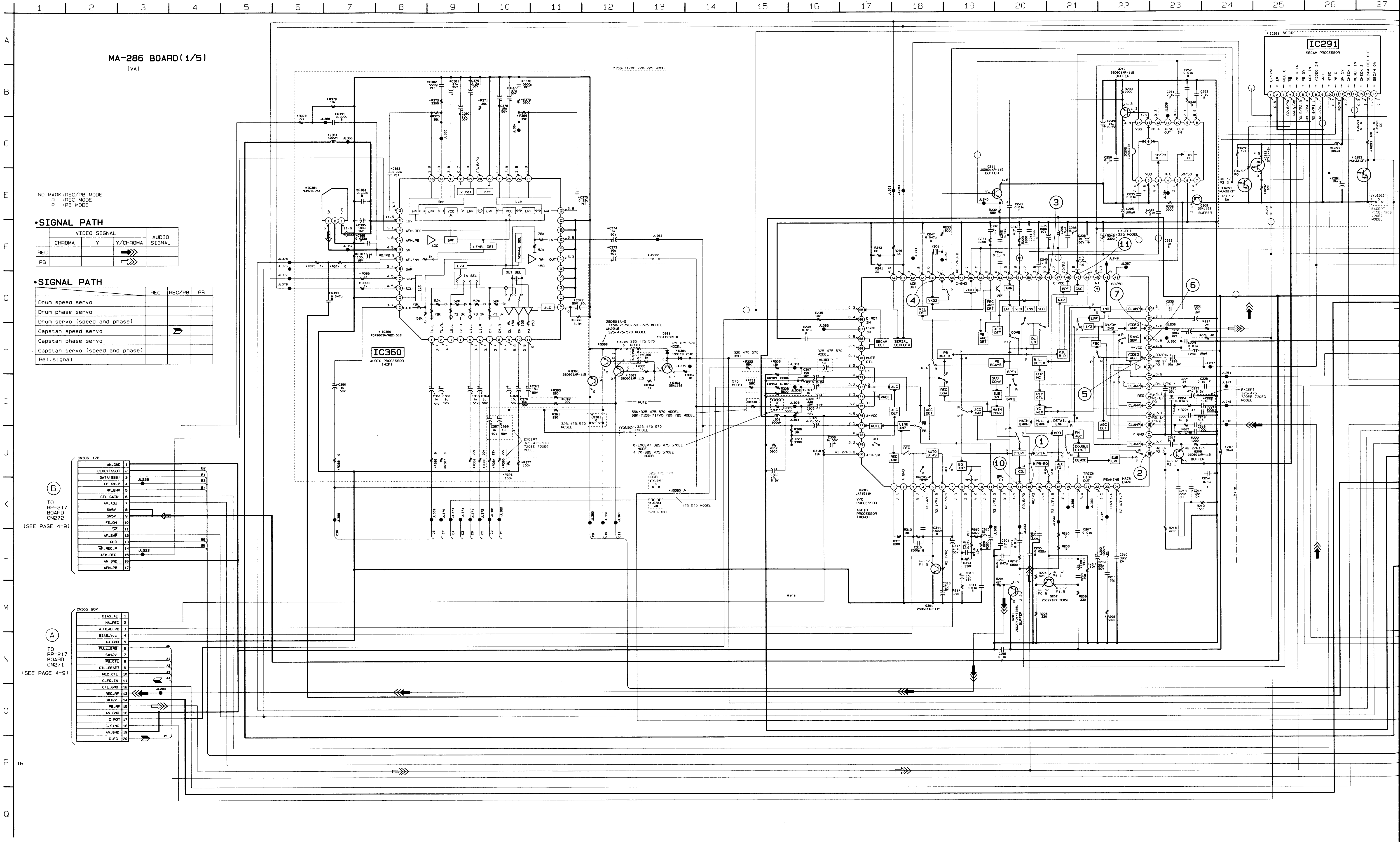
MA-286 BOARD (CONDUCTOR SIDE)

There are few cases that the part printed on this diagram isn't mounted in this model.


AUDIO OUT
R
L
J540
CN540
LINE-1(TV)
CN930
DECODER/
LINE-2 IN
NTSC PB
ON PAL TV
NTSC
4.43
RF
MODULATOR
OFF
ON
AERIAL
CUT/IN
RFU700
CN365
CN306
IC281
IC929
IC500
IC960
IC931
IC570
IC292
IC160
IC850
IC130
IC190
CN163
X500
X180
PH100
PH101
1-664-750-
1
2
3
4
5
6
7
8
9
10
11
12
13
12

MA-286 (VIDEO, AUDIO) SCHEMATIC DIAGRAM

— Ref. No. MA-286 Board; 2,000 Series —


MA-286 BOARD(1/5)
(VA)
IC360
AUDIO PROCESSOR
(HiFi)
IC201
Y/C PROCESSOR
AUDIO PROCESSOR (MONO)
IC291
SECAM PROCESSOR
CN306 17P
AN_GND 1
CLOCK(SSB) 2
DATA(SSB) 3
RF_SW_P 4
RF_ENV 5
CTL GAIN 6
AV_ADJ 7
SW5V 8
SW5V 9
FE_ON 10
SP 11
AF_SWP 12
REC 13
AF_REC_P 14
AFM_REC 15
AN_GND 16
AFM_PB 17
Ⓑ
TO RP-217 BOARD CN272
(SEE PAGE 4-9)
CN305 20P
BIAS_AE 1
NA_REC 2
A_HEAD_PB 3
BIAS_Vcc 4
AU_GND 5
FULL_ERS 6
SW12V 7
PB_CTL 8
CTL_RESET 9
REC_CTL 10
C_FG_IN 11
CTL_GND 12
REC_RF 13
SW12V 14
PB_RF 15
AN_GND 16
C.ROT 17
C.SYNC 18
AN_GND 19
C_FG 20
Ⓐ
TO RP-217 BOARD CN271
(SEE PAGE 4-9)

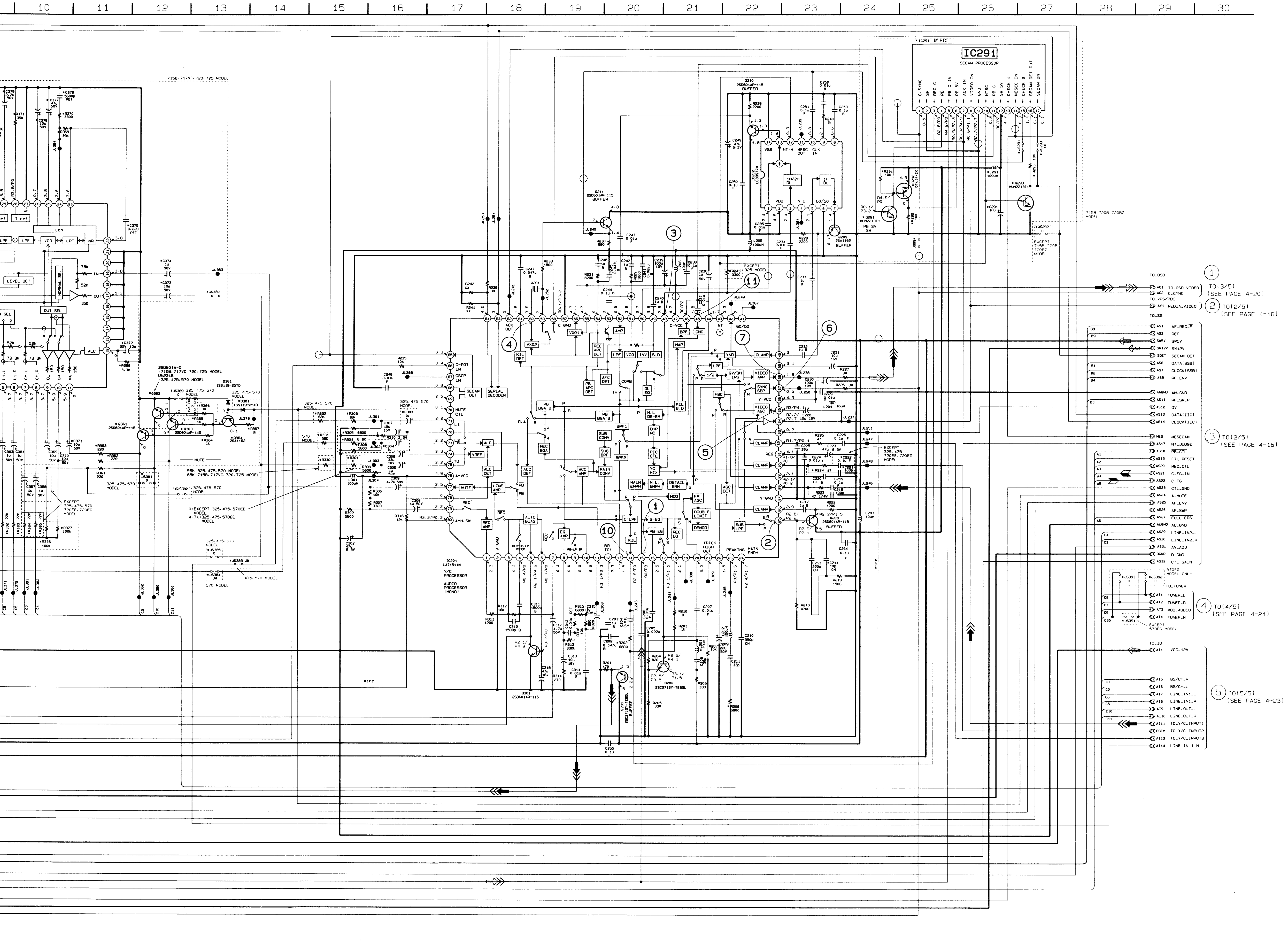
NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡≫	
PB			⇨≫	

•SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo		➡	
Capstan phase servo			
Capstan servo (speed and phase)			
Ref.signal			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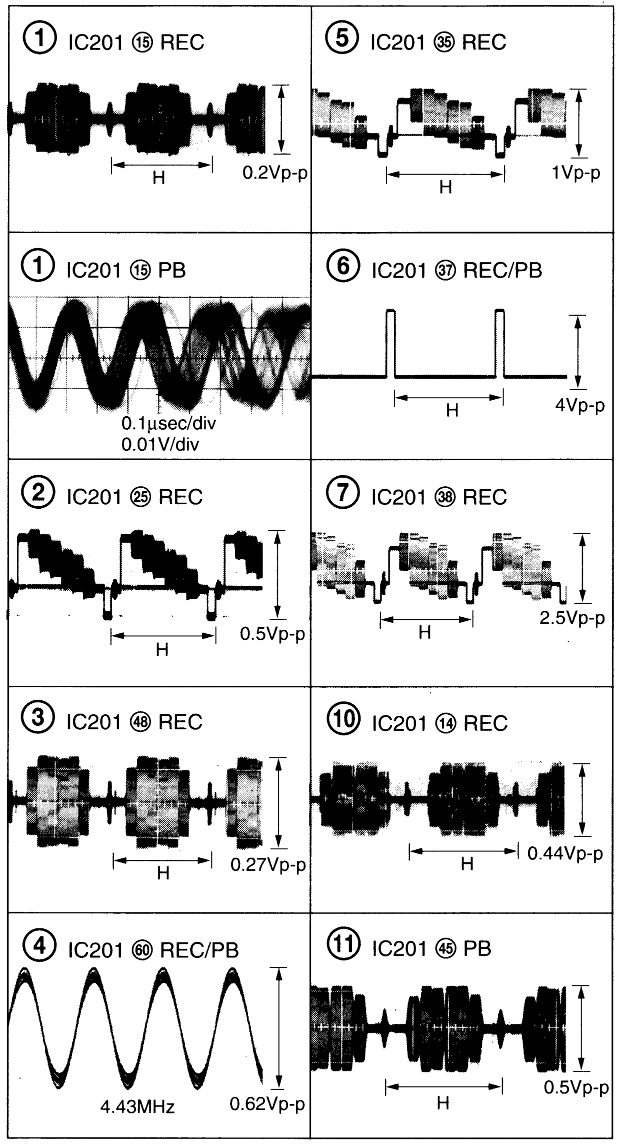
IC291
SECAM PROCESSOR
IC201
LA71511M
Y/C
PROCESSOR
AUDIO
PROCESSOR
(MONO)
Q210
2SD601AR-115
BUFFER
Q211
2SD601AR-115
BUFFER
Q209
2SA1162
BUFFER
Q208
2SD601AR-115
BUFFER
Q301
2SD601AR-115
Q202
2SC2712Y-TE85L
IC202
LA9911M
TO(3/5)
(SEE PAGE 4-20)
TO(2/5)
(SEE PAGE 4-16)
TO(2/5)
(SEE PAGE 4-16)
TO(4/5)
(SEE PAGE 4-21)
TO(5/5)
(SEE PAGE 4-23)
TO.OSD
TO.VPS/PDC
TO.SS
TO.TUNER
TO.IO
EXCEPT 325 MODEL
715B 717VC 720 725 MODEL
325 475 570 MODEL
570EG MODEL ONLY
EXCEPT 570EG MODEL
MUTE
WIRE
①
②
③
④
⑤
⑥
⑦
⑩
⑪

MA-286 BOARD (1/3)



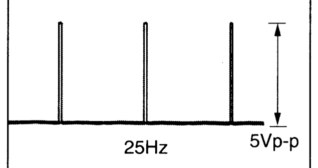
MA-286 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

— Ref. No. MA-286 Board; 2,000 Series —

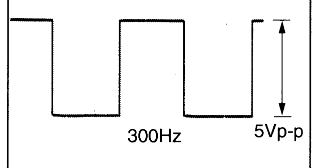
• See page 4-10 for the MA-286 printed wiring board diagram.

MA-286 BOARD (2/3)

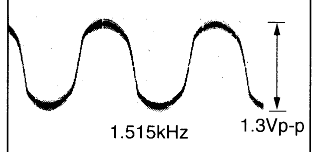
⑫ CN101 ③ REC/PB



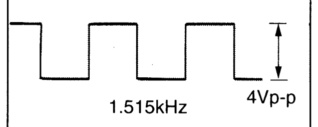
⑬ CN101 ④ REC/PB



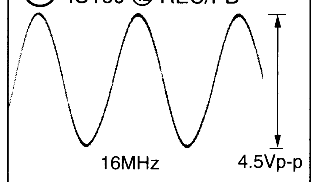
⑭ CN102 ③ REC/PB



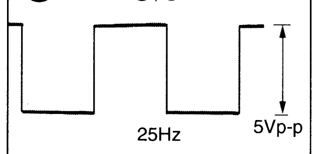
⑮ CN305 ⑳ REC/PB



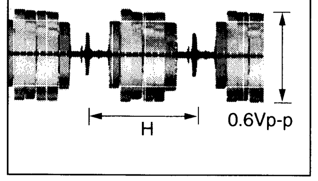
⑯ IC160 ㊷ REC/PB

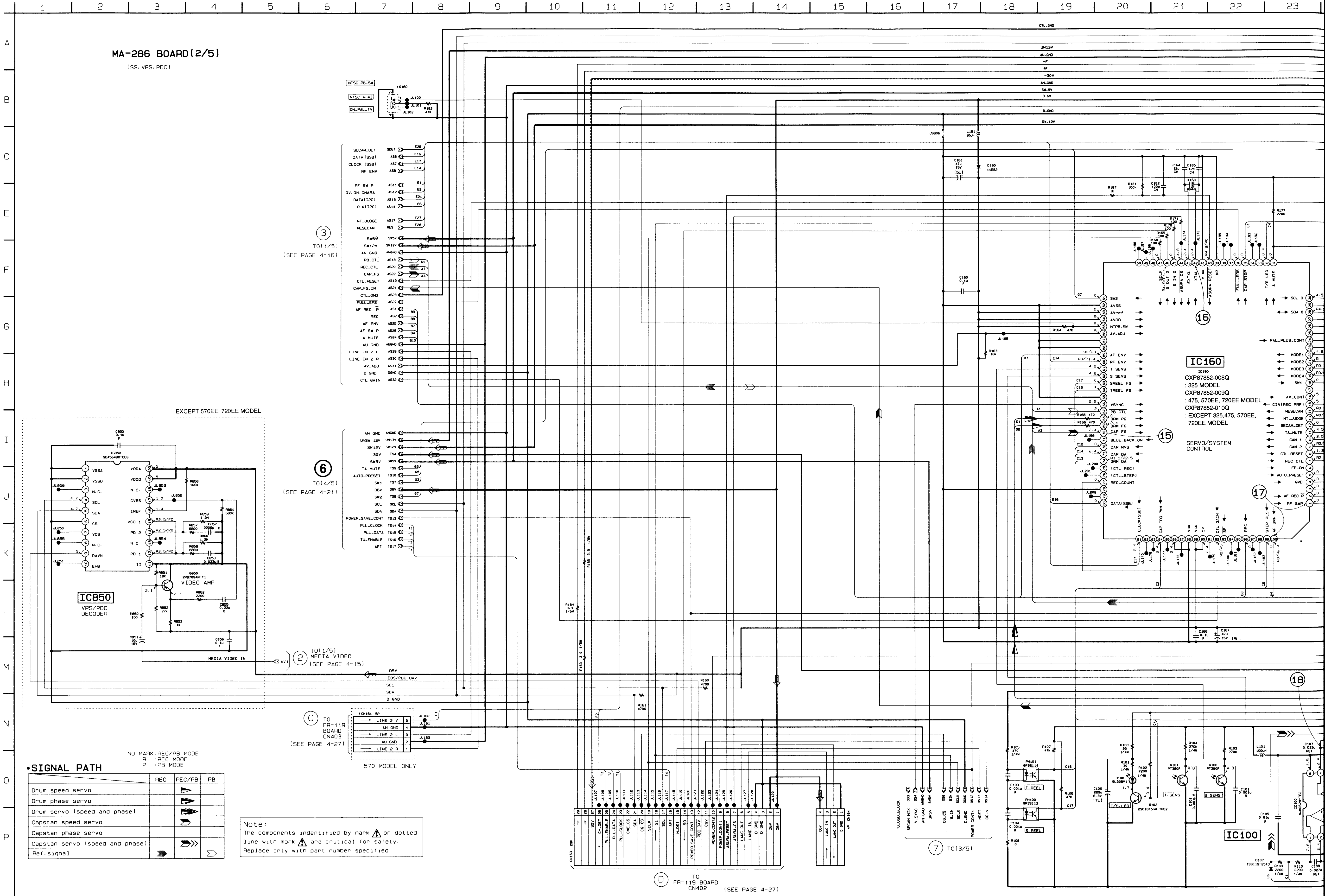


⑰ IC160 ①,⑩⓪ REC/PB



⑱ IC100 ⑦ REC/PB




MA-286 BOARD(2/5)
(SS, VPS, PDC)
EXCEPT 570EE, 720EE MODEL
IC850
VPS/PDC DECODER
VIDEO AMP
③ TO(1/5) (SEE PAGE 4-16)
⑥ TO(4/5) (SEE PAGE 4-21)
② TO(1/5) MEDIA-VIDEO (SEE PAGE 4-15)
MEDIA VIDEO IN
Ⓒ TO FR-119 BOARD CN403 (SEE PAGE 4-27)
*CN161 5P
LINE 2 V
AN GND
LINE 2 L
AU GND
LINE 2 R
570 MODEL ONLY
Ⓓ TO FR-119 BOARD CN402 (SEE PAGE 4-27)
⑦ TO(3/5)
IC160
CXP87852-008Q
: 325 MODEL
CXP87852-009Q
: 475, 570EE, 720EE MODEL
CXP87852-010Q
: EXCEPT 325,475, 570EE, 720EE MODEL
SERVO/SYSTEM CONTROL
IC100
⑮
⑯
⑰
⑱
D5V
EDS/PDC DAV
SCL
SDA
D GND
CTL.GND
UN13V
AU.GND
SW.5V
D.GND
SW.12V

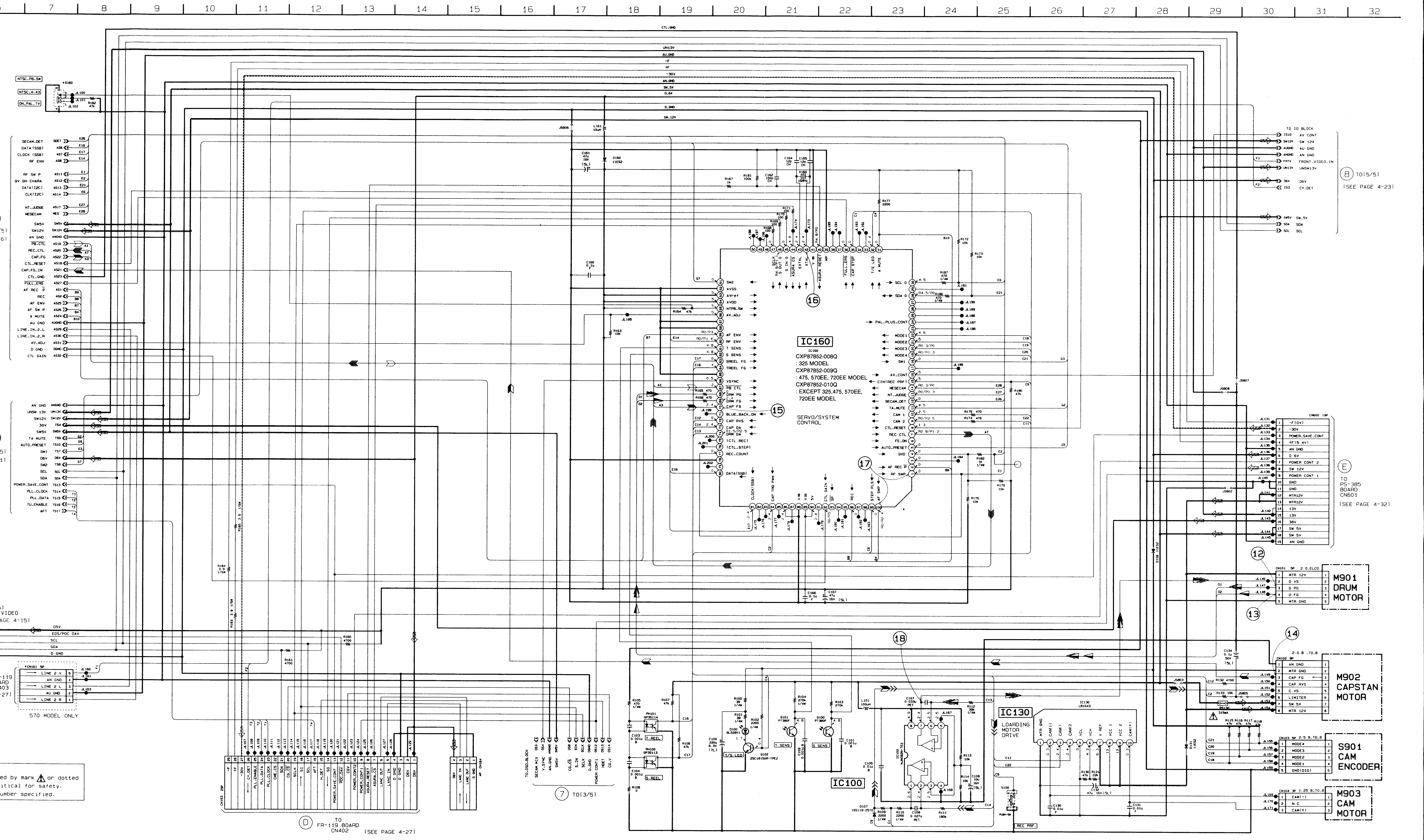
NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

•SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶	
Drum servo (speed and phase)		▶	
Capstan speed servo		➤	
Capstan phase servo			
Capstan servo (speed and phase)		➤»	
Ref.signal	➤		▷

Note:
The components indentified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

e MA-286 printed wiring board diagram.


7
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28
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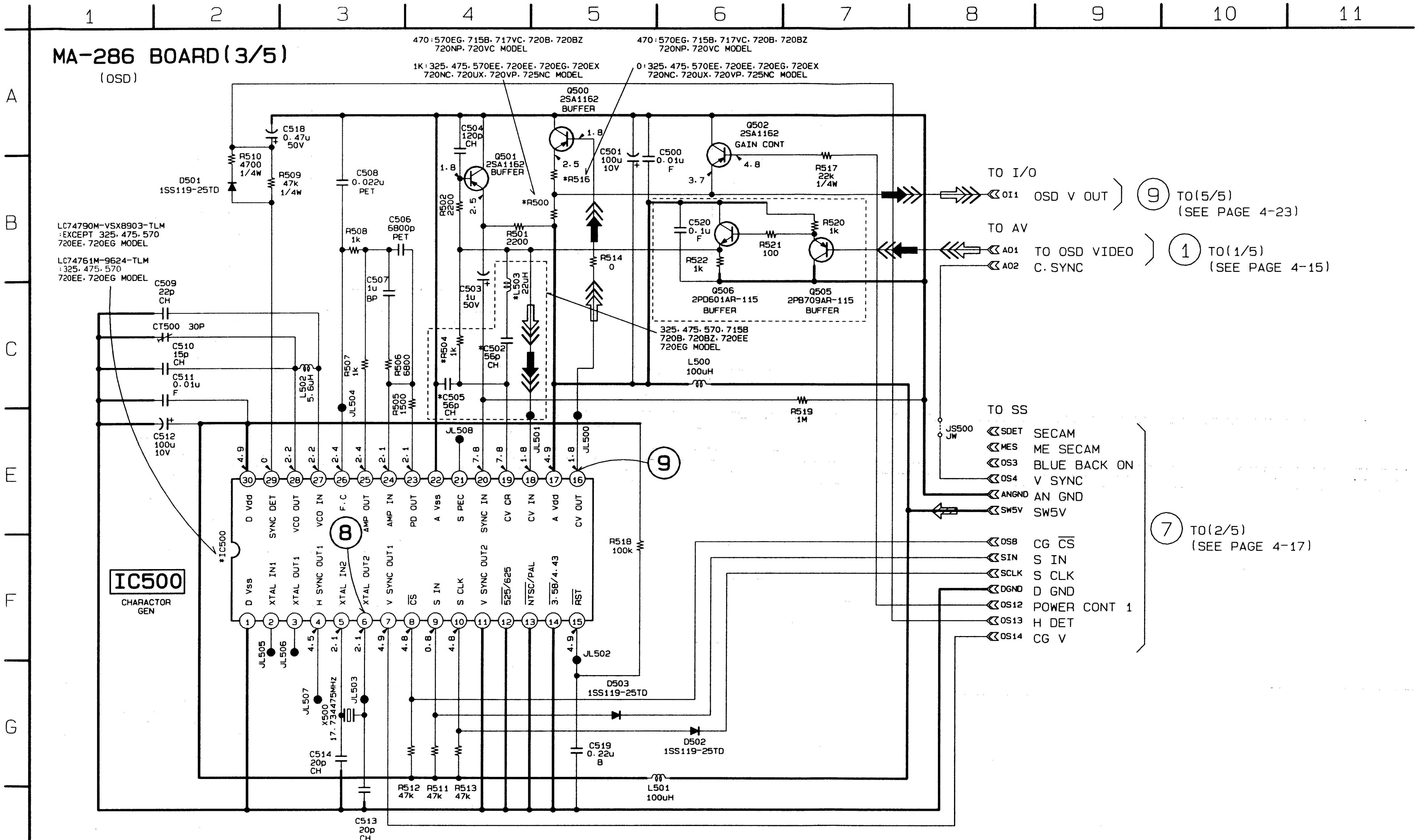
30
31
32
IC160
CXP87852-008Q
: 325 MODEL
CXP87852-009Q
: 475, 570EE, 720EE MODEL
CXP87852-010Q
: EXCEPT 325,475, 570EE, 720EE MODEL
SERVO/SYSTEM CONTROL
IC130
LOADING MOTOR DRIVE
IC100
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
S901 CAM ENCODER
M903 CAM MOTOR
TO ID BLOCK
8 TO(5/5)
(SEE PAGE 4-23)
E TO PS-385 BOARD CN601
(SEE PAGE 4-32)
D TO FR-119 BOARD CN402
(SEE PAGE 4-27)
7 TO(3/5)
570 MODEL ONLY
15
16
17
18
12
13
14

ed by mark ⚠ or dotted
itical for safety.
umber specified.

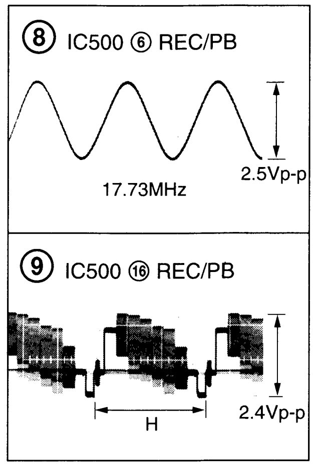
MA-286 (OSD) SCHEMATIC DIAGRAM

— Ref. No. MA-286 Board; 2,000 Series —

• See page 4-10 for the MA-286 printed wiring board diagram.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
MA-286 BOARD(3/5)
(OSD)
470:570EG. 715B. 717VC. 720B. 720BZ 720NP. 720VC MODEL
1K:325. 475. 570EE. 720EE. 720EG. 720EX 720NC. 720UX. 720VP. 725NC MODEL
470:570EG. 715B. 717VC. 720B. 720BZ 720NP. 720VC MODEL
0:325. 475. 570EE. 720EE. 720EG. 720EX 720NC. 720UX. 720VP. 725NC MODEL
Q500 2SA1162 BUFFER
Q501 2SA1162 BUFFER
Q502 2SA1162 GAIN CONT
Q505 2PB709AR-115 BUFFER
Q506 2PD601AR-115 BUFFER
D501 1SS119-25TD
D502 1SS119-25TD
D503 1SS119-25TD
C518 0.47u 50V
R510 4700 1/4W
R509 47k 1/4W
C508 0.022u PET
C504 120p CH
C501 100u 10V
C500 0.01u F
R517 22k 1/4W
*R515
*R500
R502 2200
R501 2200
R508 1k
C506 6800p PET
C507 1u BP
C503 1u 50V
*L503 22uH
R514 0
C520 0.1u F
R520 1k
R521 100
R522 1k
325. 475. 570. 715B 720B. 720BZ. 720EE 720EG MODEL
L500 100uH
R519 1M
LC74790M-VSX8903-TLM :EXCEPT 325. 475. 570 720EE. 720EG MODEL
LC74761M-9624-TLM :325. 475. 570 720EE. 720EG MODEL
C509 22p CH
CT500 30P
C510 15p CH
C511 0.01u F
C512 100u 10V
L502 5.6uH
R507 1k
R506 6800
R505 150
*R504 1k
*C502 56p CH
*C505 56p CH
JL504
JL508
JL501
JL500
JL505
JL506
JL507
JL503
JL502
X500 17.734475MHz
C514 20p CH
C513 20p CH
R512 47k
R511 47k
R513 47k
C519 0.22u B
L501 100uH
R518 100k
*IC500
IC500
CHARACTOR GEN
D Vdd
SYNC DET
VCO OUT
VCO IN
F.C
AMP OUT
AMP IN
PD OUT
A Vss
S PEC
SYNC IN
CV CR
CV IN
A Vdd
CV OUT
D Vss
XTAL IN1
XTAL OUT1
H SYNC OUT1
XTAL IN2
XTAL OUT2
V SYNC OUT1
CS
S IN
S CLK
V SYNC OUT2
525/625
NTSC/PAL
3.58/4.43
RST
⑧
⑨
TO I/O
OI1 OSD V OUT
⑨ TO(5/5) (SEE PAGE 4-23)
TO AV
AO1 TO OSD VIDEO
AO2 C.SYNC
① TO(1/5) (SEE PAGE 4-15)
TO SS
JS500 JW
SDET SECAM
MES ME SECAM
OS3 BLUE BACK ON
OS4 V SYNC
ANGND AN GND
SW5V SW5V
OS8 CG CS
SIN S IN
SCLK S CLK
DGND D GND
OS12 POWER CONT 1
OS13 H DET
OS14 CG V
⑦ TO(2/5) (SEE PAGE 4-17)

MA-286 BOARD (3/3)



•SIGNAL PATH

16

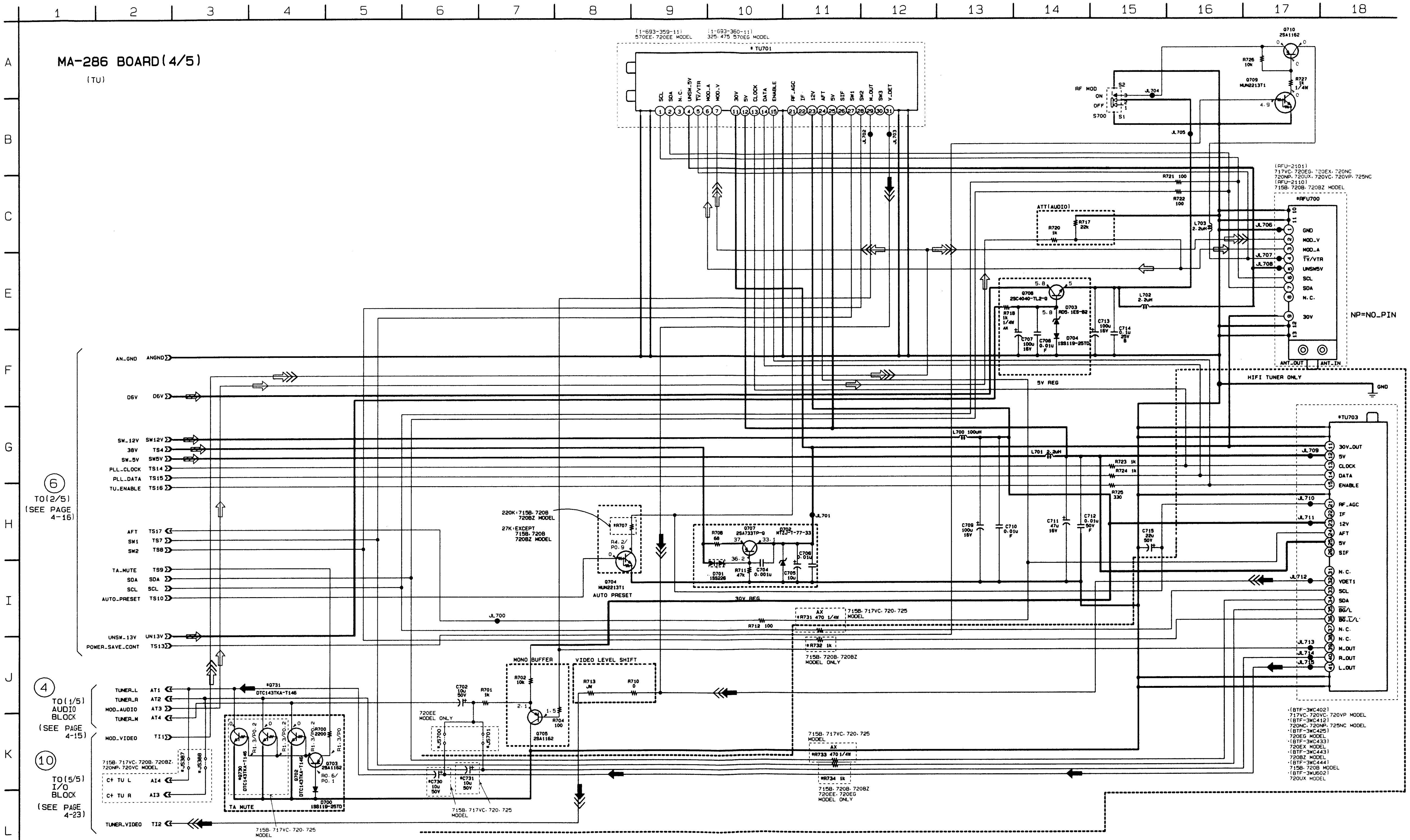
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡»	
PB			⇨»	

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

MA-286 (TUNER) SCHEMATIC DIAGRAM

— Ref. No. MA-286 Board; 2,000 Series —

- See page 4-10 for the MA-286 printed wiring board diagram.


MA-286 BOARD(4/5)
(TU)
TU701
(1-693-359-11) 570EE, 720EE MODEL
(1-693-360-11) 325, 475, 570EG MODEL
SCL
SDA
N.C.
UNSW_5V
TV/VTR
MOD_A
MOD_V
30V
5V
CLOCK
DATA
ENABLE
RF_AGC
IF
12V
AFT
5V
SIF
SW1
SW2
M_OUT
SW3
V_DET
RF MOD
ON
OFF
S700
S2
S1
Q710 2SA1162
Q709 MUN2213T1
R726 10k
R727 1k 1/4W
RFU700
(RFU-2101) 717VC, 720EG, 720EX, 720NC, 720NP, 720UX, 720VC, 720VP, 725NC
(RFU-2110) 715B, 720B, 720BZ MODEL
GND
MOD_V
MOD_A
TV/VTR
UNSW5V
SCL
SDA
N.C.
30V
ANT_OUT
ANT_IN
NP=NO_PIN
ATT(AUDIO)
R720 1k
R717 22k
R721 100
R722 100
L703 2.2uH
Q708 2SC4040-TL2-G
D703 RD5.1ES-B2
D704 1SS119-25TD
L702 2.2uH
5V REG
HIFI TUNER ONLY
GND
TU703
30V_OUT
5V
CLOCK
DATA
ENABLE
RF_AGC
IF
12V
AFT
5V
SIF
N.C.
VDET1
SCL
SDA
N.C.
N.C.
M_OUT
R_OUT
L_OUT
L700 100uH
L701 2.2uH
R723 1k
R724 1k
R725 330
C709 100u 16V
C710 0.01u
C711 47u 16V
C712 0.01u 50V
C715 22u 50V
AN_GND ANGND
D6V D6V
SW_12V SW12V
38V TS4
SW_5V SW5V
PLL_CLOCK TS14
PLL_DATA TS15
TU_ENABLE TS16
AFT TS17
SW1 TS7
SW2 TS8
TA_MUTE TS9
SDA SDA
SCL SCL
AUTO_PRESET TS10
UNSW_13V UN13V
POWER_SAVE_CONT TS13
⑥ TO(2/5) (SEE PAGE 4-16)
220K: 715B, 720B 720BZ MODEL
27K: EXCEPT 715B, 720B 720BZ MODEL
R707
Q704 MUN2213T1
AUTO PRESET
R708 68
Q707 2SA733TP-Q
D702 RTZJ-T-77-33
D701 1SS226
R711 47k
C704 0.001u
C705 10u
C706 0.01u
30V REG
JL700
JL701
R712 100
AX R731 470 1/4W
715B, 717VC, 720, 725 MODEL
R732 1k
715B, 720B, 720BZ MODEL ONLY
④ TO(1/5) AUDIO BLOCK (SEE PAGE 4-15)
TUNER_L AT1
TUNER_R AT2
MOD_AUDIO AT3
TUNER_M AT4
MOD_VIDEO TI1
⑩ TO(5/5) I/O BLOCK (SEE PAGE 4-23)
C+ TU L AI4
C+ TU R AI3
TUNER_VIDEO TI2
Q731 DTC143TKA-T146
Q730 DTC143TKA-T146
Q702 DTC143TKA-T146
R700 2200
Q703 2SA1162
D700 1SS119-25TD
TA MUTE
715B, 717VC, 720B, 720BZ, 720NP, 720VC MODEL
715B, 717VC, 720, 725 MODEL
MONO BUFFER
R702 10k
Q705 2SA1162
R704 100
VIDEO LEVEL SHIFT
R713
R710 0
C702 10u 50V
R701 1k
720EE MODEL ONLY
C730 10u 50V
C731 10u 50V
715B, 717VC, 720, 725 MODEL
AX R733 470 1/4W
R734 1k
715B, 720B, 720BZ 720EE, 720EG MODEL ONLY
(BTF-3WC402) 717VC, 720VC, 720VP MODEL
(BTF-3WC412) 720NC, 720NP, 725NC MODEL
(BTF-3WC425) 720EG MODEL
(BTF-3WC433) 720EX MODEL
(BTF-3WC443) 720BZ MODEL
(BTF-3WC444) 715B, 720B MODEL
(BTF-3WC602) 720UX MODEL

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

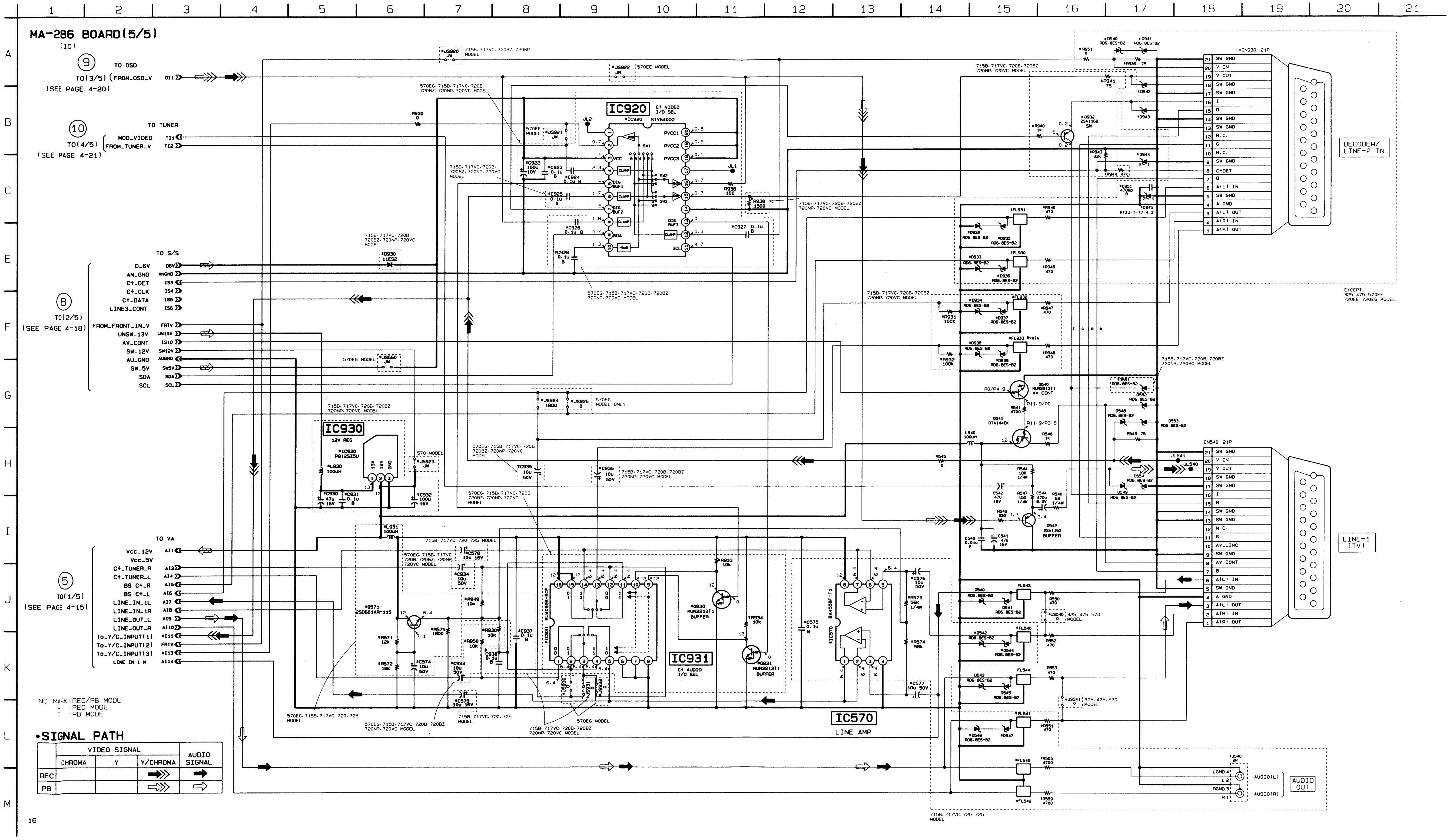
•SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			⇛	➡
PB			⇨	⇨

MA-286 (I/O) SCHEMATIC DIAGRAM

— Ref. No. MA-286 Board; 2,000 Series —

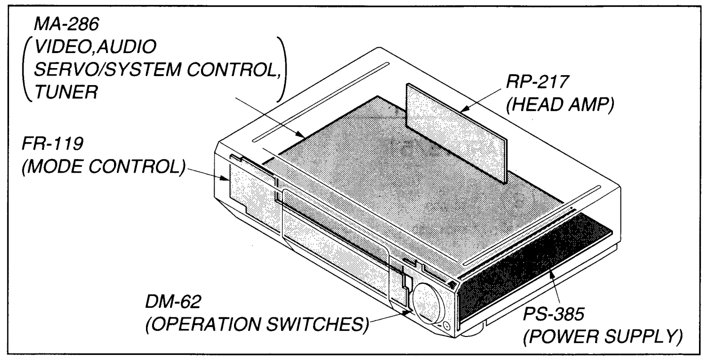
- See page 4-10 for the MA-286 printed wiring board diagram.

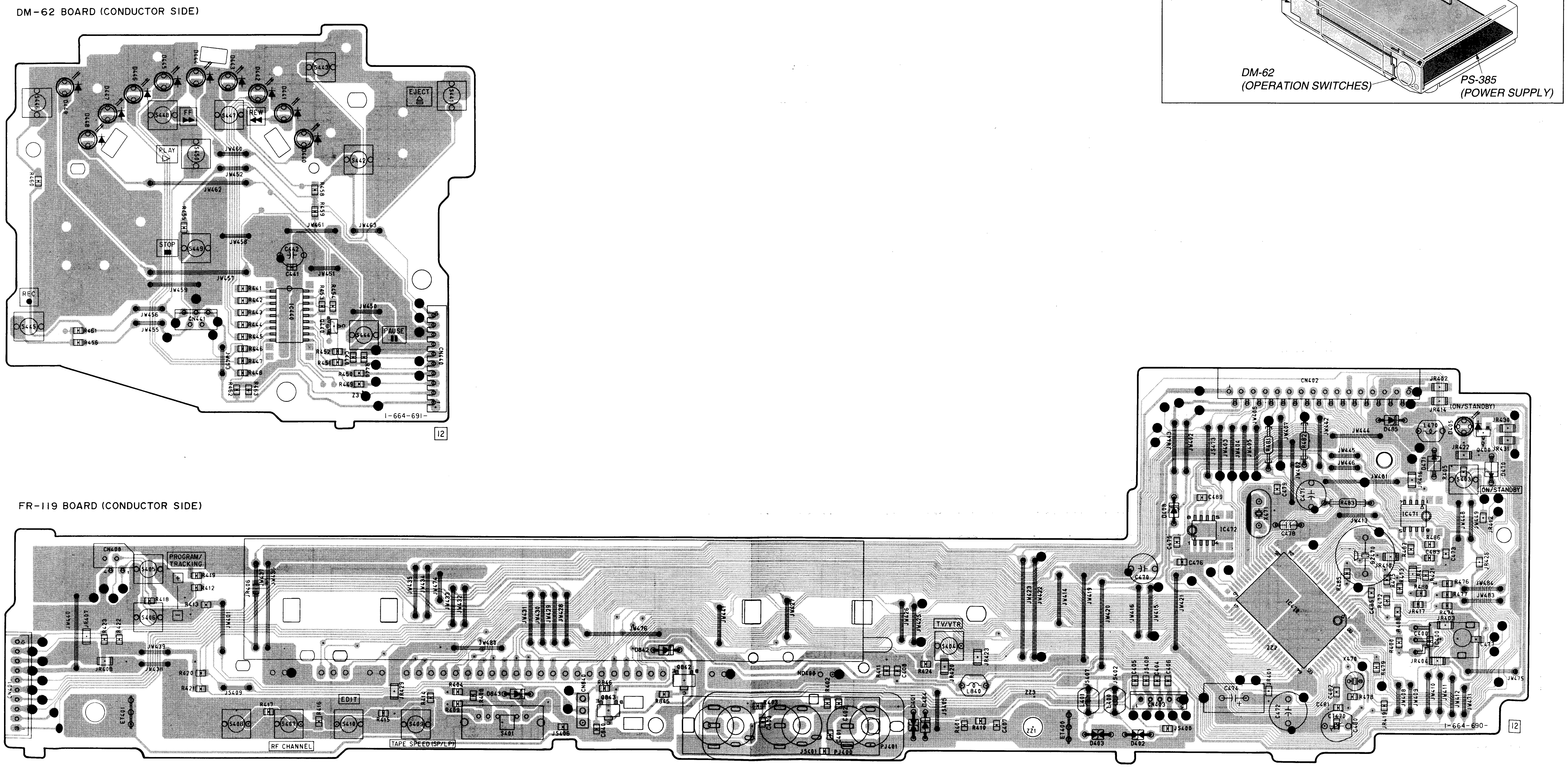

MA-286 BOARD (5/5)
(IO)
9 TO OSD
TO (3/5) FROM_OSD_V
(SEE PAGE 4-20)
10 TO TUNER
TO (4/5) MOD_VIDEO FROM_TUNER_V
(SEE PAGE 4-21)
TO S/S
D_6V AN_GND C+_DET C+_CLK C+_DATA LINE3_CONT
8 TO (2/5)
(SEE PAGE 4-18)
FROM_FRONT_IN_V UNSW_13V AV_CONT SW_12V AU_GND SW_5V SDA SCL
TO VA
Vcc_12V Vcc_5V C+_TUNER_R C+_TUNER_L BS C+_R BS C+_L LINE_IN_1L LINE_IN_1R LINE_OUT_L LINE_OUT_R To_Y/C_INPUT(1) To_Y/C_INPUT(2) To_Y/C_INPUT(3) LINE IN 1 M
5 TO (1/5)
(SEE PAGE 4-15)
IC920 C+ VIDEO I/O SEL
IC930 12V REG
IC931 C+ AUDIO I/O SEL
IC570 LINE AMP
Q930 MUN2213T1 BUFFER
Q931 MUN2213T1 BUFFER
Q571 2SD601AR-115
Q540 MUN2213T1 AV CONT
Q541 DTA144EK
Q542 2SA1162 BUFFER
Q932 2SA1162 SW
CN930 21P
DECODER/ LINE-2 IN
CN540 21P
LINE-1 (TV)
AUDIO OUT
AUDIO(L) AUDIO(R)
NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE
•SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
16

DM-62 (OPERATION SWITCHES), FR-119 (MODE CONTROL) PRINTED WIRING BOARDS

— Ref. No. DM-62 Board, FR-119 Board; 3,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.


MA-286
(VIDEO,AUDIO
SERVO/SYSTEM CONTROL,
TUNER)
RP-217
(HEAD AMP)
FR-119
(MODE CONTROL)
DM-62
(OPERATION SWITCHES)
PS-385
(POWER SUPPLY)

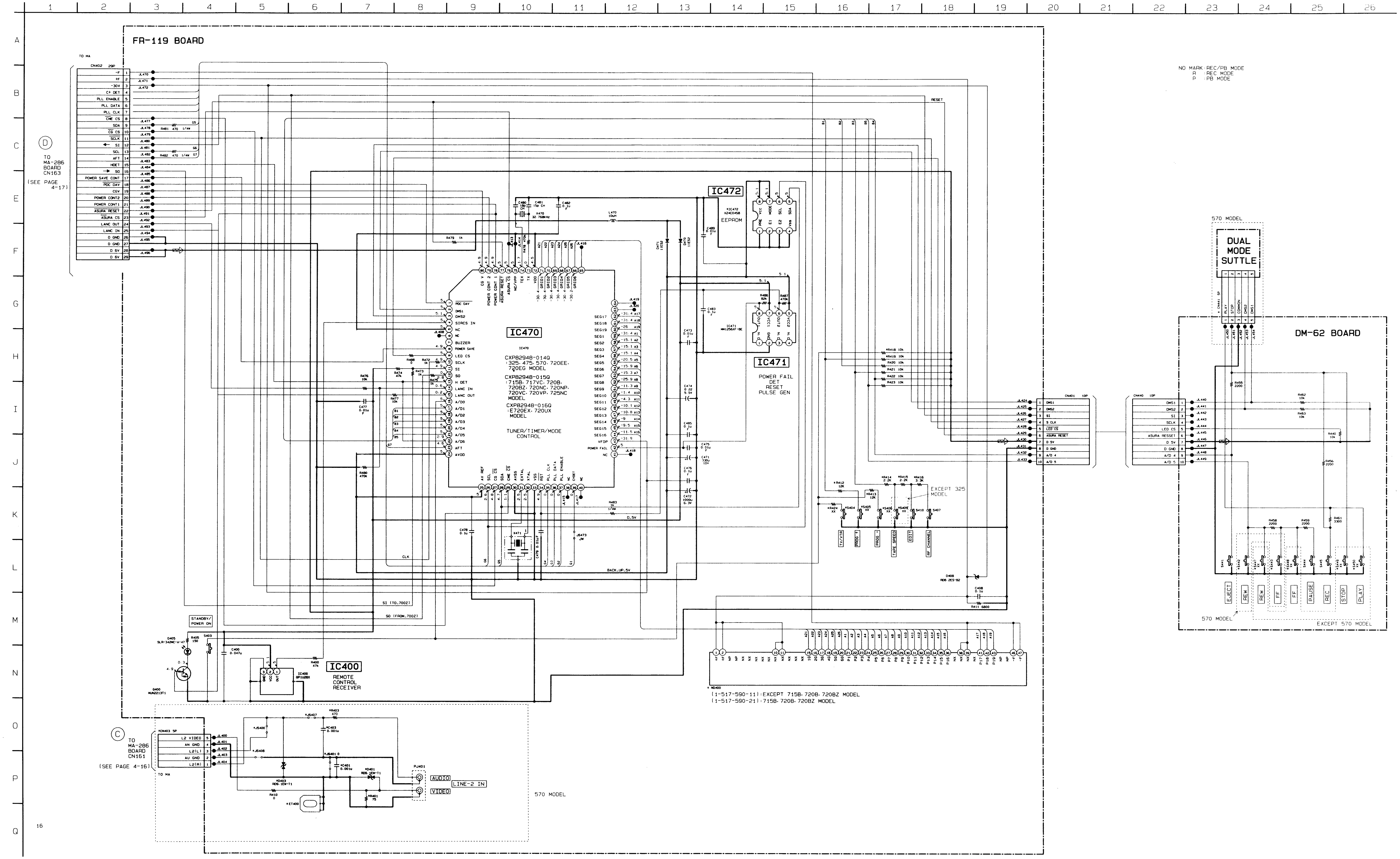

DM-62 BOARD (CONDUCTOR SIDE)

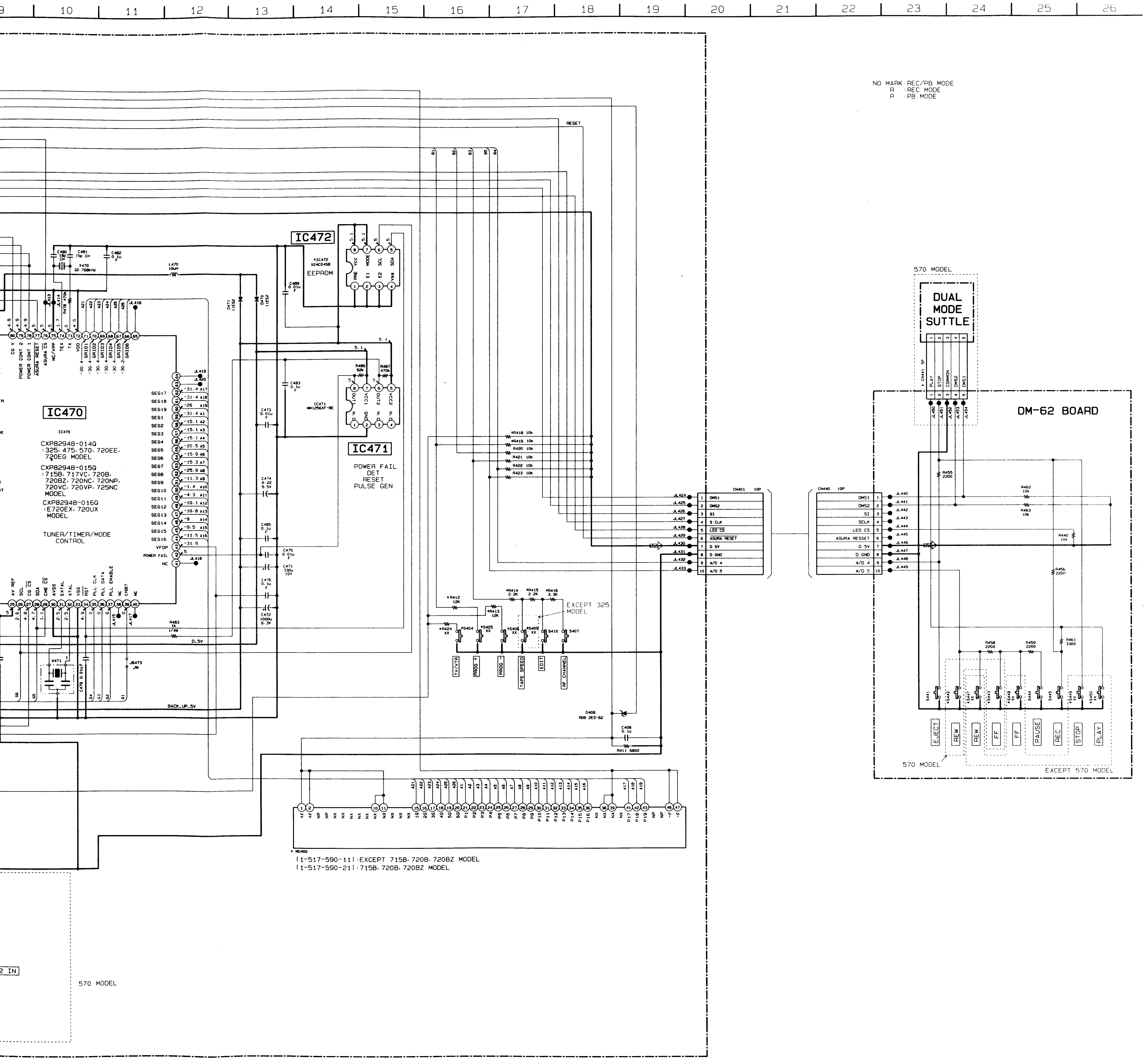
FR-119 BOARD (CONDUCTOR SIDE)

EJECT
FF
REW
PLAY
STOP
REC
PAUSE
S440
S441
S442
S443
S444
S445
S446
S447
S448
S449
S450
IC441
CN441
C441
JW451
JW452
JW455
JW456
JW457
JW458
JW459
JW460
JW461
JW462
JW463
1-664-691-
12
CN402
ON/STANDBY
PROGRAM/
TRACKING
EDIT
RF CHANNEL
TAPE SPEED(SP/LP)
TV/VTR
S401
S404
S405
S406
S407
S408
S410
IC402
IC471
IC472
C476
C478
D482
D483
D840
D842
PJ401
J5401
L840
ZZ1
1-664-690-
12

DM-62 (OPERATION SWITCHES), FR-119 (MODE CONTROL) SCHEMATIC DIAGRAMS

— Ref. No. DM-62 Board, FR-119 Board; 3,000 Series —


FR-119 BOARD
DM-62 BOARD
IC470
CXP82948-014Q (325, 475, 570, 720EE, 720EG MODEL)
CXP82948-015Q (715B, 717VC, 720B, 720BZ, 720NC, 720NP, 720VC, 720VP, 725NC MODEL)
CXP82948-016Q (E720EX, 720UX MODEL)
TUNER/TIMER/MODE CONTROL
IC472
EEPROM
IC471
POWER FAIL DET RESET PULSE GEN
IC400
REMOTE CONTROL RECEIVER
STANDBY/POWER ON
DUAL MODE SUTTLE
570 MODEL
EXCEPT 570 MODEL
EXCEPT 325 MODEL
NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE
TO MA-286 BOARD CN163 (SEE PAGE 4-17)
TO MA-286 BOARD CN161 (SEE PAGE 4-16)
TV/VTR
PROG +
PROG -
TAPE SPEED
EDIT
RF CHANNEL
EJECT
REW
FF
PAUSE
REC
STOP
PLAY
AUDIO
VIDEO
LINE-2 IN
(1-517-590-11) : EXCEPT 715B, 720B, 720BZ MODEL
(1-517-590-21) : 715B, 720B, 720BZ MODEL
RESET
BACK_UP_5V
SI (TO_700Z)
SO (FROM_700Z)
CLK


10
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14
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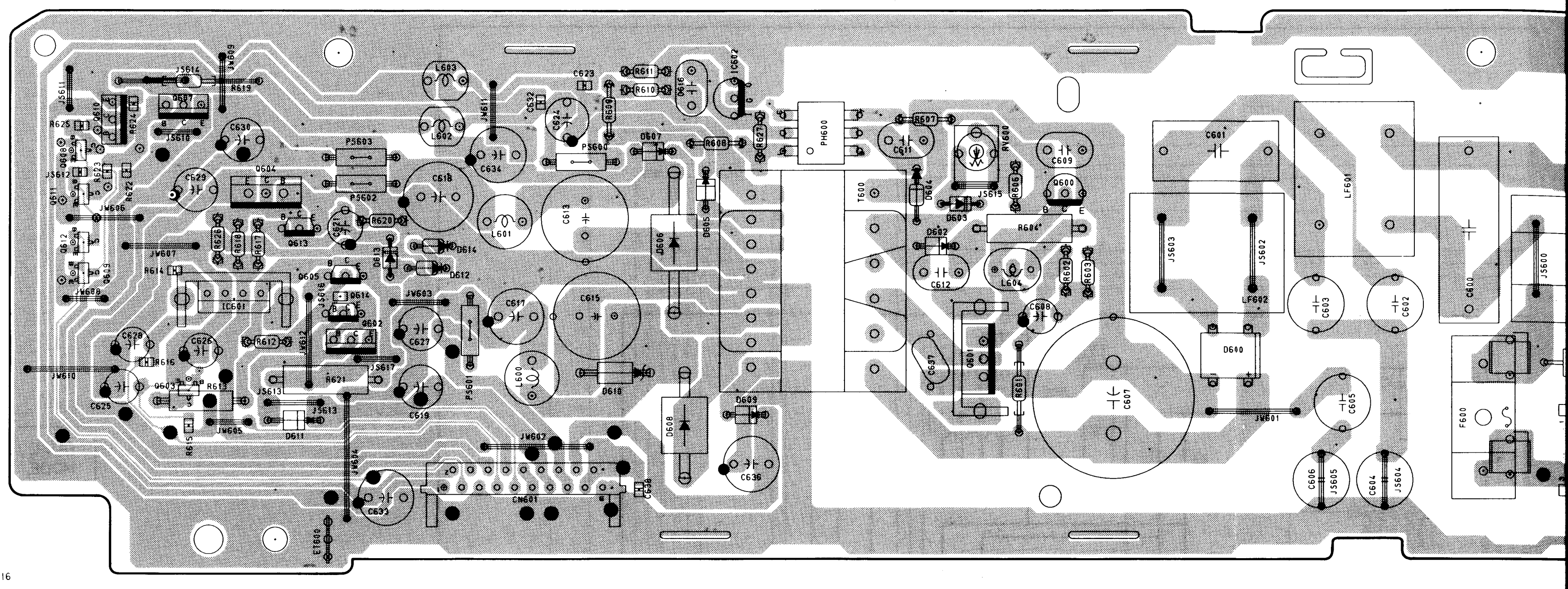
16
17
18
19
20
21
22
23
24
25
26
NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE
RESET
IC472
*IC472
X24C04S8
EEPROM
Vcc
MODE
SCL
SDA
PRE
E1
E2
Vss
C489 0.01u F
D470 11ES2
D471 11ES2
L470 10uH
C480
C481 150 CH
C482 0.1u F
X470 32.768kHz
IC471
MM1256XF-BE
OUT1
VCC1
OUT2
VCC2
N.C
GND
R486 82k
R487 470k
C483 0.1u F
IC471
POWER FAIL
DET
RESET
PULSE GEN
C473 0.01u F
C474 0.22 5.5V
C485 0.1u F
C475 0.01u F
C476 0.1u F
C471 330u 10V
C472 1000u 6.3V
IC470
CXP82948-014Q
:325, 475, 570, 720EE, 720EG MODEL
CXP82948-015Q
:715B, 717VC, 720B, 720BZ, 720NC, 720NP, 720VC, 720VP, 725NC MODEL
CXP82948-016Q
:E720EX, 720UX MODEL
TUNER/TIMER/MODE CONTROL
CG V
POWER CONT 2
POWER CONT 1
ASURA RESET
ASURA CS
NC/VPP
TEX
TX
VDD
GRID1
GRID2
GRID3
GRID4
GRID5
GRID6
SEG17
SEG18
SEG19
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
VFDP
POWER FAIL
NC
JL419
JL420
JL418
AV REF
SCL
CG CS
SDA
CME CS
AVSS
EXTAL
XTAL
VSS
RST
PLL CLK
PLL DATA
PLL ENABLE
NC
C+DET
NC
X471
C479 0.056F
R483 1k 1/4W
D.5V
BACK.UP.5V
JS473 JW
*R418 10k
*R419 10k
R420 10k
R421 10k
R422 10k
R423 10k
*R412 12K
*R413 12K
*R414 2.2K
*R415 2.2K
*R416 3.3K
*R424
*S404
*S405
*S406
*S409
S410
S407
EXCEPT 325 MODEL
TV/VTR
PROG +
PROG -
TAPE SPEED
EDIT
RF CHANNEL
D408 RD8.2ES-B2
C408 0.1u
R411 6800
CN401 10P
DMS1
DMS2
SI
S CLK
LED CS
ASURA RESET
D 5V
D GND
A/D 4
A/D 5
JL424
JL425
JL426
JL427
JL428
JL429
JL430
JL431
JL432
JL433
CN440 10P
DMS1
DMS2
SI
SCLK
LED CS
ASURA RESSET
D 5V
D GND
A/D 4
A/D 5
JL440
JL441
JL442
JL443
JL444
JL445
JL446
JL447
JL448
JL449
570 MODEL
DUAL MODE SUTTLE
CN441 5P
PLAY
STOP
COMMON
DMS2
DMS1
DM-62 BOARD
R455 2200
R462 10k
R463 10k
R440 10k
R456 2200
R461 3300
R458 2200
R459 2200
EJECT
REW
REW
FF
FF
PAUSE
REC
STOP
PLAY
570 MODEL
EXCEPT 570 MODEL
+F
NP
NX
1G
2G
3G
4G
5G
6G
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
P13
P14
P15
P16
P17
P18
P19
-F
A1
A21
A22
A23
A24
A25
A26
* ND400
(1-517-590-11) : EXCEPT 715B, 720B, 720BZ MODEL
(1-517-590-21) : 715B, 720B, 720BZ MODEL
2 IN
570 MODEL

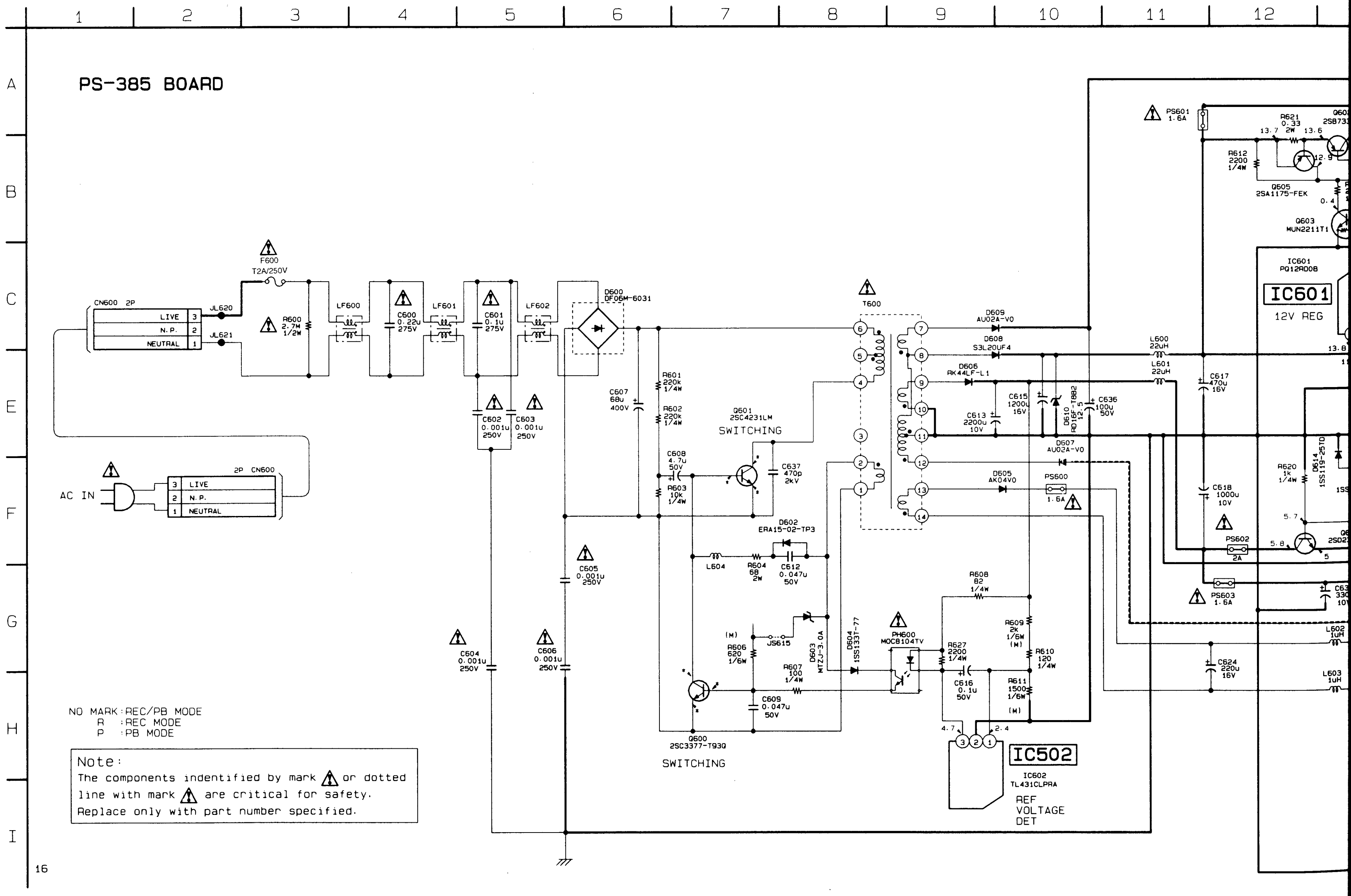
MODE CONTROL / OPERATION SWITCHES
FR-119 DM-62

PS-385 (POWER SUPPLY) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

— Ref. No. PS-385 Board; 5,000 Series —

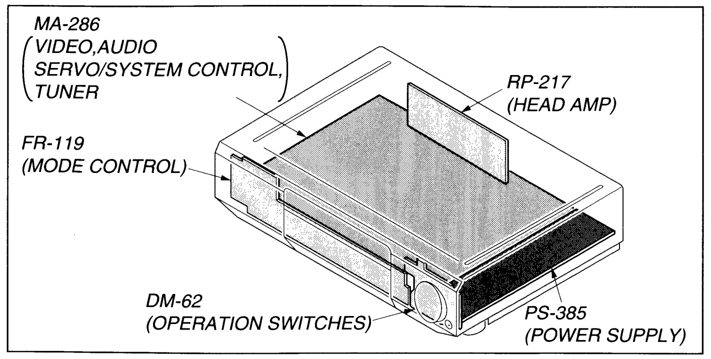
PS-385 BOARD (CONDUCTOR SIDE)


PS-385 BOARD (CONDUCTOR SIDE)
16
CN601
T600
PH600
IC601
IC602
F600
LF600
LF601
LF602
C607
C615
C613
C616
C618
D608
D609
D610
Q600
Q601
Q602
Q603
Q605
L600
L601
L602
L603
L604

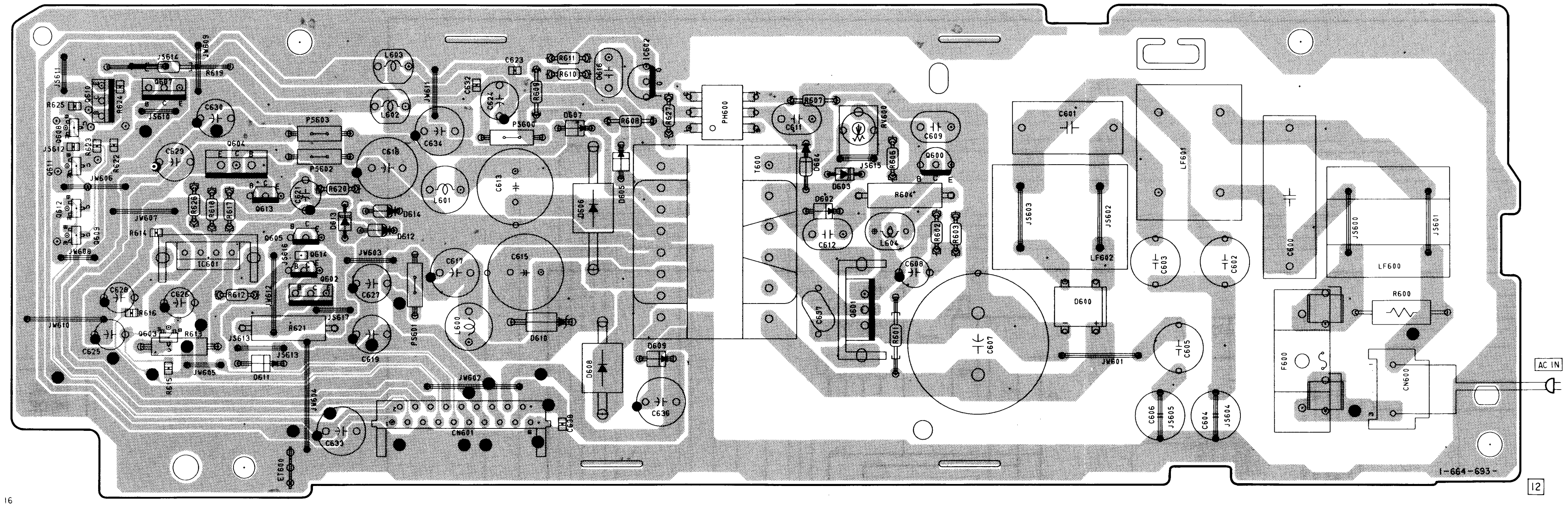

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
PS-385 BOARD
CN600 2P
LIVE
N.P.
NEUTRAL
JL620
JL621
F600
T2A/250V
R600
2.7M
1/2W
LF600
C600
0.22u
275V
LF601
C601
0.1u
275V
LF602
D600
DF06M-6031
C602
0.001u
250V
C603
0.001u
250V
C607
68u
400V
R601
220k
1/4W
R602
220k
1/4W
Q601
2SC4231LM
SWITCHING
C637
470p
2kV
C608
4.7u
50V
R603
10k
1/4W
D602
ERA15-02-TP3
L604
R604
68
2W
C612
0.047u
50V
C605
0.001u
250V
C604
0.001u
250V
C606
0.001u
250V
R606
620
1/6W
JS615
D603
MTZJ-3.0A
D604
1SS133T-77
R607
100
1/4W
C609
0.047u
50V
Q600
2SC3377-T93Q
SWITCHING
PH600
MOC8104TV
R608
82
1/4W
R609
2k
1/6W
R627
2200
1/4W
C616
0.1u
50V
R610
120
1/4W
R611
1500
1/6W
IC502
IC602
TL431CLPRA
REF
VOLTAGE
DET
T600
D609
AU02A-V0
D608
S3L20UF4
D606
RK44LF-L1
C615
1200u
16V
C613
2200u
10V
D610
RD15F-T8B2
C636
100u
50V
D607
AU02A-V0
D605
AK04V0
PS600
1.6A
L600
22uH
L601
22uH
C617
470u
16V
C618
1000u
10V
PS602
2A
PS603
1.6A
C624
220u
16V
L602
1uH
L603
1uH
PS601
1.6A
R621
0.33
2W
R612
2200
1/4W
Q605
2SA1175-FEK
Q603
MUN2211T1
IC601
PQ12RD08
IC601
12V REG
R620
1k
1/4W
D614
1SS119-25TD
2P CN600
LIVE
N.P.
NEUTRAL
AC IN
16

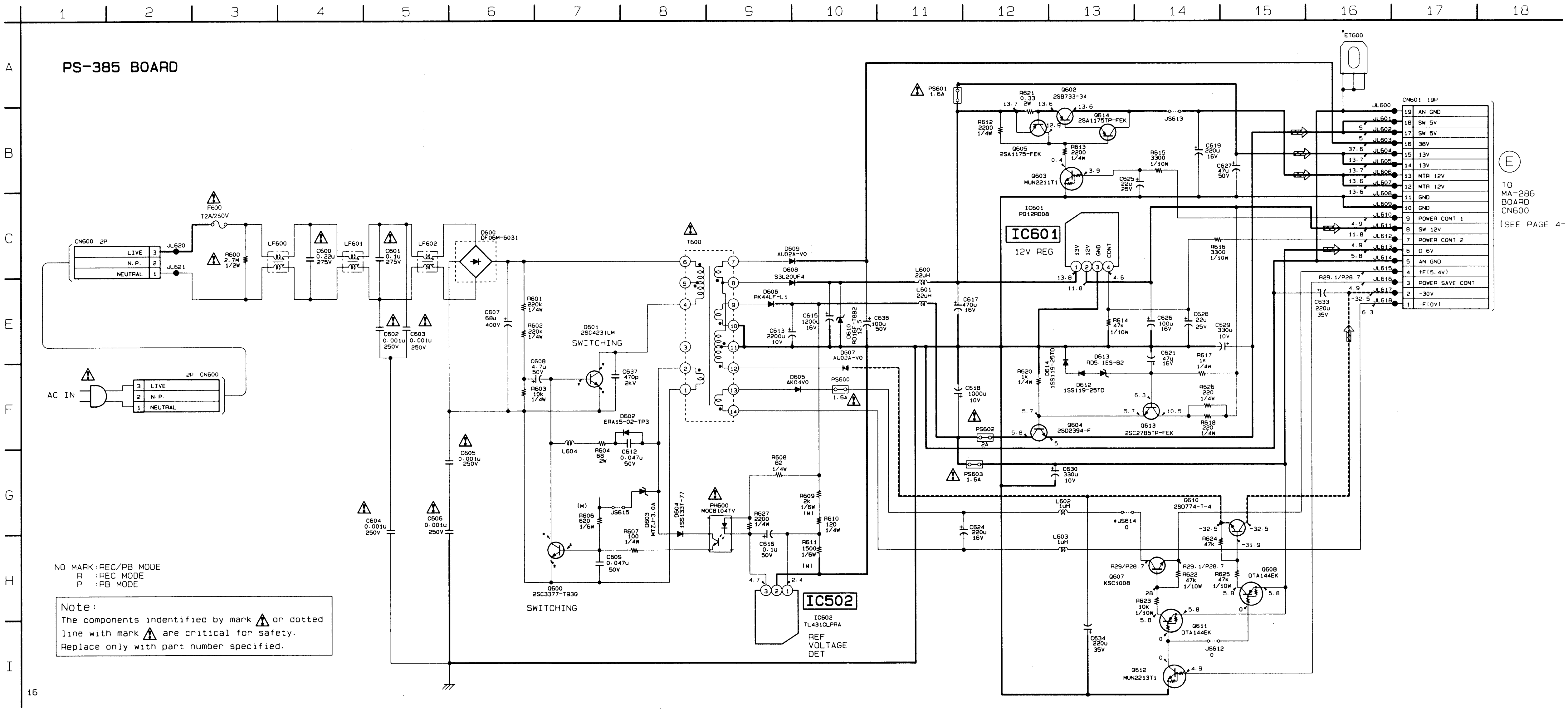
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

Note:
The components indentified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.


MA-286
(VIDEO,AUDIO
SERVO/SYSTEM CONTROL,
TUNER)
RP-217
(HEAD AMP)
FR-119
(MODE CONTROL)
DM-62
(OPERATION SWITCHES)
PS-385
(POWER SUPPLY)

PS-385 BOARD (CONDUCTOR SIDE)


AC IN
1-664-693-
12
16
T600
PH600
D600
LF600
LF601
LF602
R600
F600
CN600
CN601
C607
C615
C618
C613
C601
C602
C603
C605
C606
C604


1
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11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
PS-385 BOARD
ET600
CN600 2P
LIVE
N.P.
NEUTRAL
AC IN
2P CN600
F600
T2A/250V
R600
2.7M
1/2W
LF600
LF601
LF602
C600
0.22u
275V
C601
0.1u
275V
C602
0.001u
250V
C603
0.001u
250V
D600
DF06M-6031
C607
68u
400V
R601
220k
1/4W
R602
220k
1/4W
Q601
2SC4231LM
SWITCHING
C637
470p
2kV
T600
D602
ERA15-02-TP3
L604
R604
68
2W
C612
0.047u
50V
C605
0.001u
250V
C604
0.001u
250V
C606
0.001u
250V
R605
620
1/6W
JS615
D603
MTZJ-3.0A
D604
1SS133T-77
R607
100
1/4W
C609
0.047u
50V
Q600
2SC3377-T93Q
SWITCHING
PH600
MOCB104TV
R627
2200
1/4W
C616
0.1u
50V
R608
82
1/4W
R609
2k
1/6W
R610
120
1/4W
R611
1500
1/6W
IC502
IC602
TL431CLPRA
REF
VOLTAGE
DET
D609
AU02A-V0
D608
S3L20UF4
D606
RK44LF-L1
C615
1200u
16V
C613
2200u
10V
D610
RD12FB2
C636
100u
50V
D607
AU02A-V0
D605
AK04V0
PS600
1.6A
L600
22uH
L601
22uH
C617
470u
16V
C618
1000u
10V
PS601
1.6A
PS602
2A
PS603
1.6A
C630
330u
10V
R621
0.33
2W
Q602
2SB733-34
R612
2200
1/4W
Q614
2SA1175TP-FEK
Q605
2SA1175-FEK
R613
2200
1/4W
Q603
MUN2211T1
C625
22u
25V
R615
3300
1/10W
JS613
C619
220u
16V
C627
47u
50V
IC601
PQ12RD08
IC601
12V REG
R616
3300
1/10W
R614
47k
1/10W
C626
100u
16V
C628
22u
25V
C629
330u
10V
D614
1SS119-25TD
D613
RD5.1ES-B2
C621
47u
16V
R617
1k
1/4W
R620
1k
1/4W
D612
1SS119-25TD
Q604
2SD2394-F
Q613
2SC2785TP-FEK
R626
220
1/4W
R618
220
1/4W
C633
220u
35V
L602
1uH
JS614
C624
220u
16V
L603
1uH
Q610
2SD774-T-4
R624
47k
Q607
KSC1008
R622
47k
R625
47k
1/10W
Q608
DTA144EK
R623
10k
1/10W
Q611
DTA144EK
JS612
C634
220u
35V
Q612
MUN2213T1
CN601 19P
JL600
JL601
JL602
JL603
JL604
JL605
JL606
JL607
JL608
JL609
JL610
JL611
JL612
JL613
JL614
JL615
JL616
JL617
JL618
19 AN GND
18 SW 5V
17 SW 5V
16 38V
15 13V
14 13V
13 MTR 12V
12 MTR 12V
11 GND
10 GND
9 POWER CONT 1
8 SW 12V
7 POWER CONT 2
6 D 6V
5 AN GND
4 +F(5.4V)
3 POWER SAVE CONT
2 -30V
1 -F(0V)
E
TO
MA-286
BOARD
CN600
(SEE PAGE 4-18)
16

NO MARK: REC/PB MODE
R : REC MODE
P : PB MODE

Note:
The components indentified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
REPAIR PARTS LIST

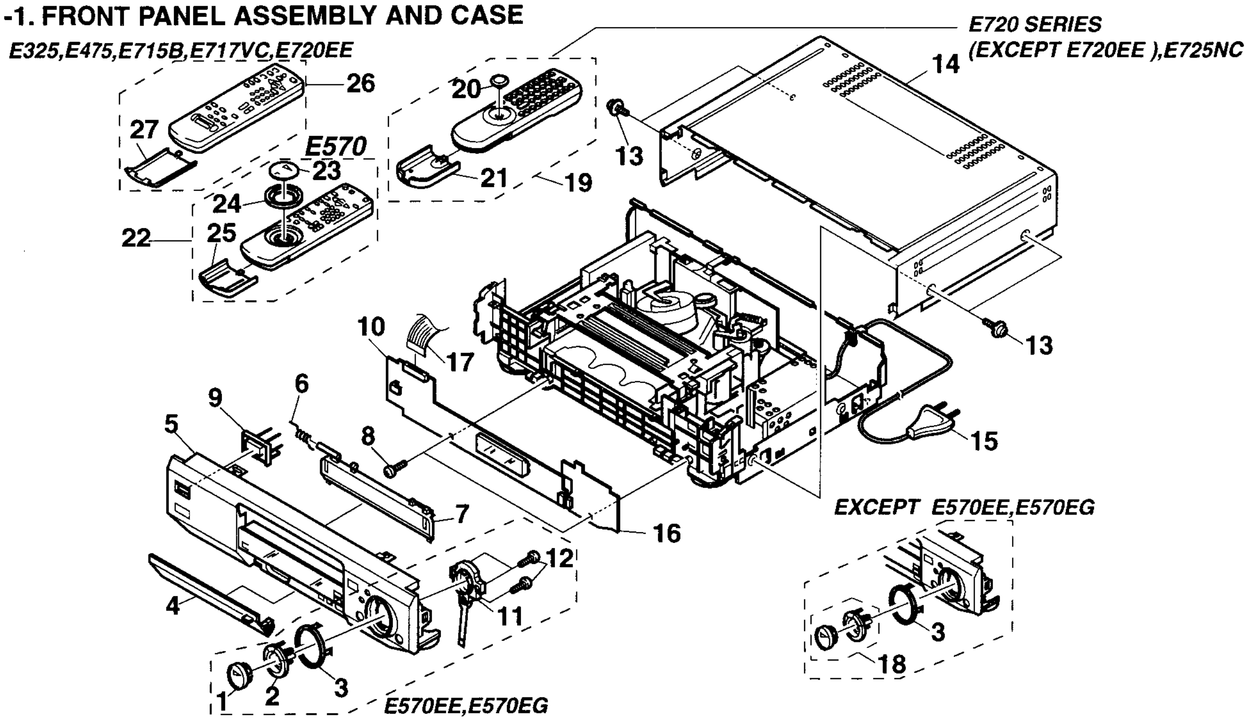
5-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

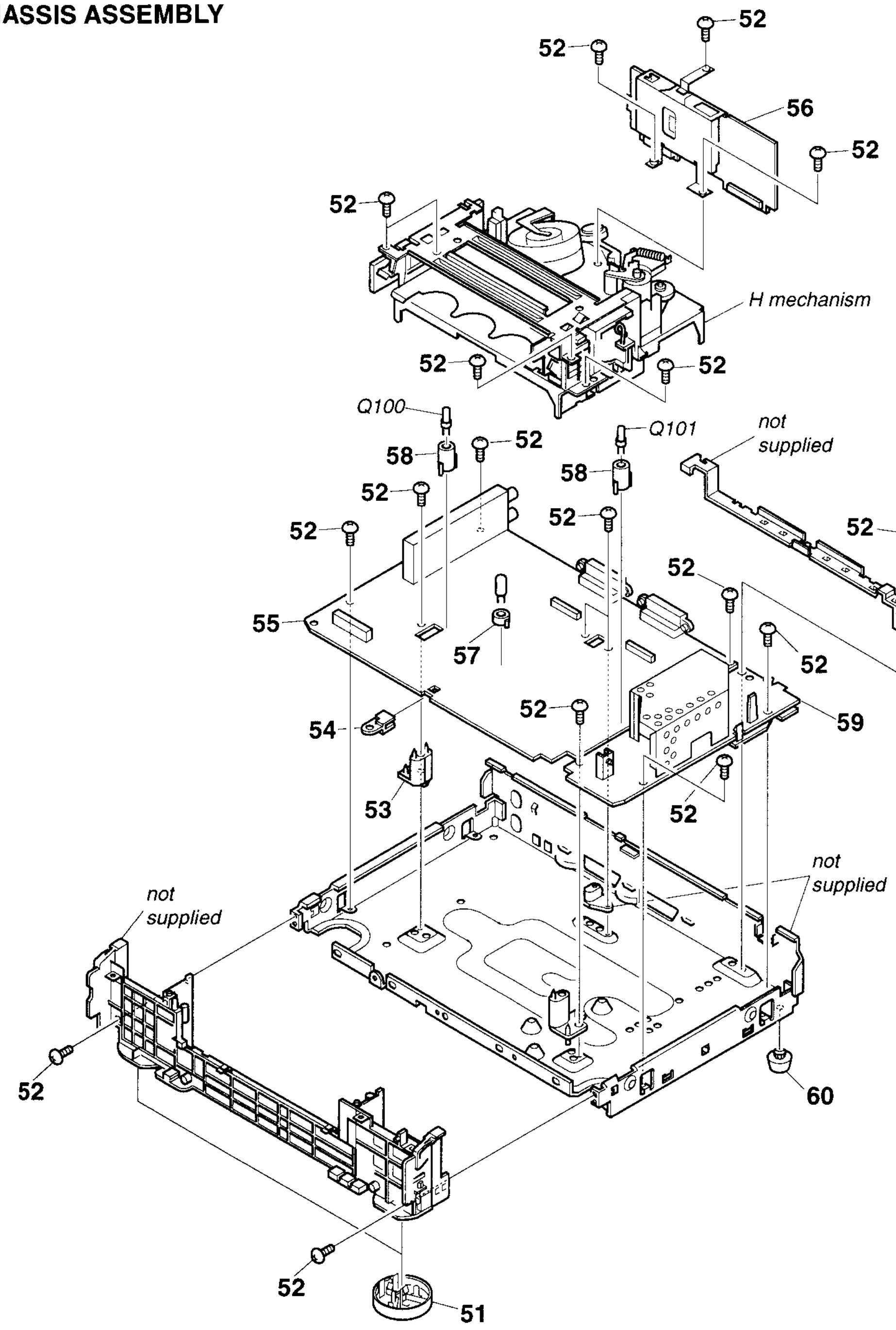
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-1-1. FRONT PANEL ASSEMBLY AND CASE



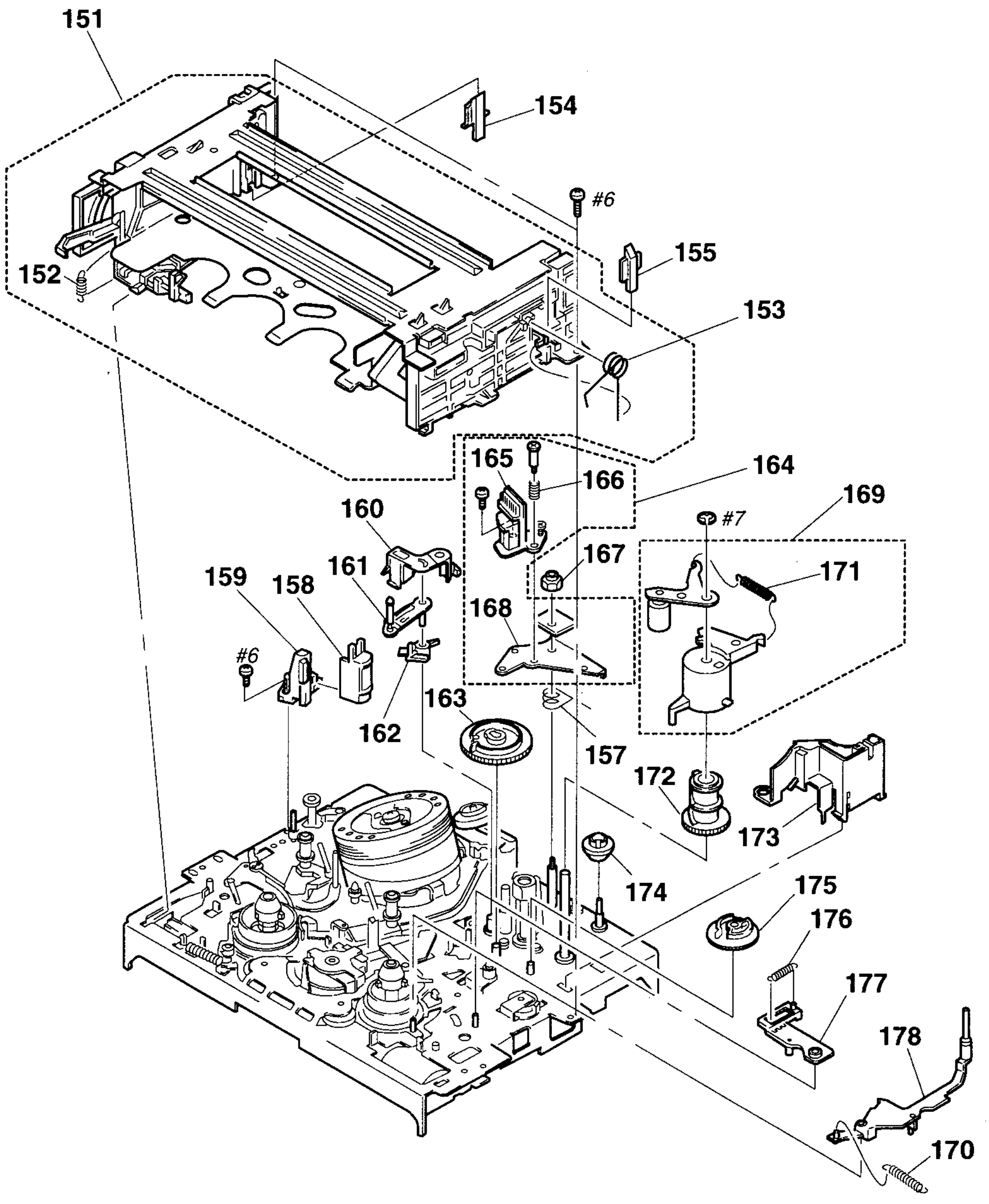
Ref. No.	Part No.	Description	Remarks
1	3-972-782-11	BUTTON, CENTER(570)	
2	3-973-077-11	RING, CHANGE SPEED(570)	
* 3	3-972-781-21	PLATE, RING ORNAMENTAL(EXCEPT 570)	
3	3-974-511-01	PLATE, RING ORNAMENTAL(570)	
4	3-970-162-31	DOOR (A), JACK (EXCEPT 325,570,715B,717VC,720B,720BZ)	
4	3-970-162-91	DOOR (A), JACK(720B,720BZ)	
4	3-974-145-71	DOOR (A), JACK(570)	
4	3-974-145-81	DOOR (A), JACK(325)	
4	3-974-145-91	DOOR (A), JACK(717VC,725NC)	
4	3-975-692-01	DOOR (A), JACK(715B)	
5	X-3946-637-1	PANEL ASSY, FRONT(720VC,720VP)	
5	X-3946-993-1	PANEL ASSY, FRONT(720B,720BZ)	
5	X-3946-994-1	PANEL ASSY, FRONT(720NP)	
5	X-3946-995-1	PANEL ASSY, FRONT(720NC)	
5	X-3946-996-1	PANEL ASSY, FRONT(720EX,720UX)	
5	X-3946-997-1	PANEL ASSY, FRONT(720EG)	
5	X-3946-998-1	PANEL ASSY, FRONT(720EE)	
5	X-3946-999-1	PANEL ASSY, FRONT(570EG)	
5	X-3947-000-1	PANEL ASSY, FRONT(570EE)	
5	X-3947-001-1	PANEL ASSY, FRONT(475)	
5	X-3947-002-1	PANEL ASSY, FRONT(325)	
5	X-3947-233-1	PANEL ASSY, FRONT(717VC)	
5	X-3947-234-1	PANEL ASSY, FRONT(715B)	
5	X-3947-235-1	PANEL ASSY, FRONT(725)	
6	3-953-432-01	SPRING (GE), FL	
7	3-972-883-01	DOOR, CASSETTE	
8	3-970-608-21	SUMITITE (B3), +BV	
9	3-966-213-01	BUTTON, POWER	
* 10	A-6791-182-A	FR-119 BOARD, COMPLETE(720VP)	
* 10	A-6791-184-A	FR-119 BOARD, COMPLETE(720UX)	
* 10	A-6791-188-A	FR-119 BOARD, COMPLETE(717VC,720VC)	
* 10	A-6791-191-A	FR-119 BOARD, COMPLETE(715B,720B)	
* 10	A-6791-193-A	FR-119 BOARD, COMPLETE(720EE)	
* 10	A-6791-195-A	FR-119 BOARD, COMPLETE(720EX)	
* 10	A-6791-197-A	FR-119 BOARD, COMPLETE(720NP)	
* 10	A-6791-199-A	FR-119 BOARD, COMPLETE(720NC,725)	
* 10	A-6791-202-A	FR-119 BOARD, COMPLETE(570EG)	
* 10	A-6791-205-A	FR-119 BOARD, COMPLETE(570EE)	
* 10	A-6791-208-A	FR-119 BOARD, COMPLETE(720EG)	
* 10	A-6791-209-A	FR-119 BOARD, COMPLETE(720BZ)	
* 10	A-6791-213-A	FR-119 BOARD, COMPLETE(325)	
* 10	A-6791-216-A	FR-119 BOARD, COMPLETE(475)	
11	1-762-844-21	SWITCH, ROTARY (570)	
12	3-968-554-01	SCREW (WN1411 D2.5 EJOT K25)(570)	
13	3-363-099-01	SCREW (CASE 3 TP2)	
* 14	3-972-887-01	CASE (LS), UPPER (EXCEPT 715B,717VC,725)	
* 14	3-972-887-11	CASE (LS), UPPER (715B,717VC,725)	
⚠15	1-782-012-11	CORD, POWER	
* 16	A-6790-203-A	DM-62 BOARD, COMPLETE	
17	1-777-960-11	CABLE, FLAT (FFM-13) 29P	
18	X-3946-983-1	BUTTON ASSY, FUNCTION(720B,720BZ)	
18	X-3946-992-1	BUTTON ASSY, FUNCTION (EXCEPT 570,715B,717VC,720B,720BZ,725)	
18	X-3947-231-1	BUTTON ASSY, FUNCTION(717VC, 725)	
18	X-3947-232-1	BUTTON ASSY, FUNCTION(715B)	
19	1-475-024-11	REMOTE COMMANDER (RMT-V197) (720EG,720NC,720NP,720VC,720VP,725)	
19	1-475-024-21	REMOTE COMMANDER (RMT-V197A) (720EX,720UX)	
19	1-475-024-31	REMOTE COMMANDER (RMT-V197B) (720B,720BZ)	
20	3-709-131-01	HEAD (ENGLISH), JOY STICK (720EG,720EX,720NC,720NP,720UX,720VC,720VP,725)	
20	3-709-132-01	HEAD (FRENCH), JOY STICK (720B,720BZ)	
21	3-709-129-01	COVER, BATTERY (720B,720BZ,720EG,720EX,720NC,720NP,720UX,720VC,720VP,725)	
22	1-475-030-11	REMOTE COMMANDER (RMT-V199) (570EE)	
22	1-475-030-21	REMOTE COMMANDER (RMT-V199A)(570EG)	
23	3-972-850-01	BUTTON, FUNCTION (570EG,570EE)	
24	3-973-077-31	RING, CHANGE SPEED(570EE,570EG)	
25	3-709-126-01	COVER, BATTERY(570EG,570EE)	
26	1-475-025-11	REMOTE COMMANDER (RMT-V198) (475,720EE)	
26	1-475-025-21	REMOTE COMMANDER (RMT-V198A)(325)	
26	1-475-067-21	REMOTE COMMANDER (RMT-V198K)(715B)	
26	1-475-067-11	REMOTE COMMANDER (RMT-V198J)(717VC)	
27	3-709-128-01	COVER, BATTERY(325,475,715B,717VC,720EE)	

5-1-2. CHASSIS ASSEMBLY


52
52
56
52
52
H mechanism
52
52
Q100
Q101
not
supplied
58
52
58
52
52
52
52
52
55
57
52
52
54
59
53
52
not
supplied
not
supplied
52
60
52
51

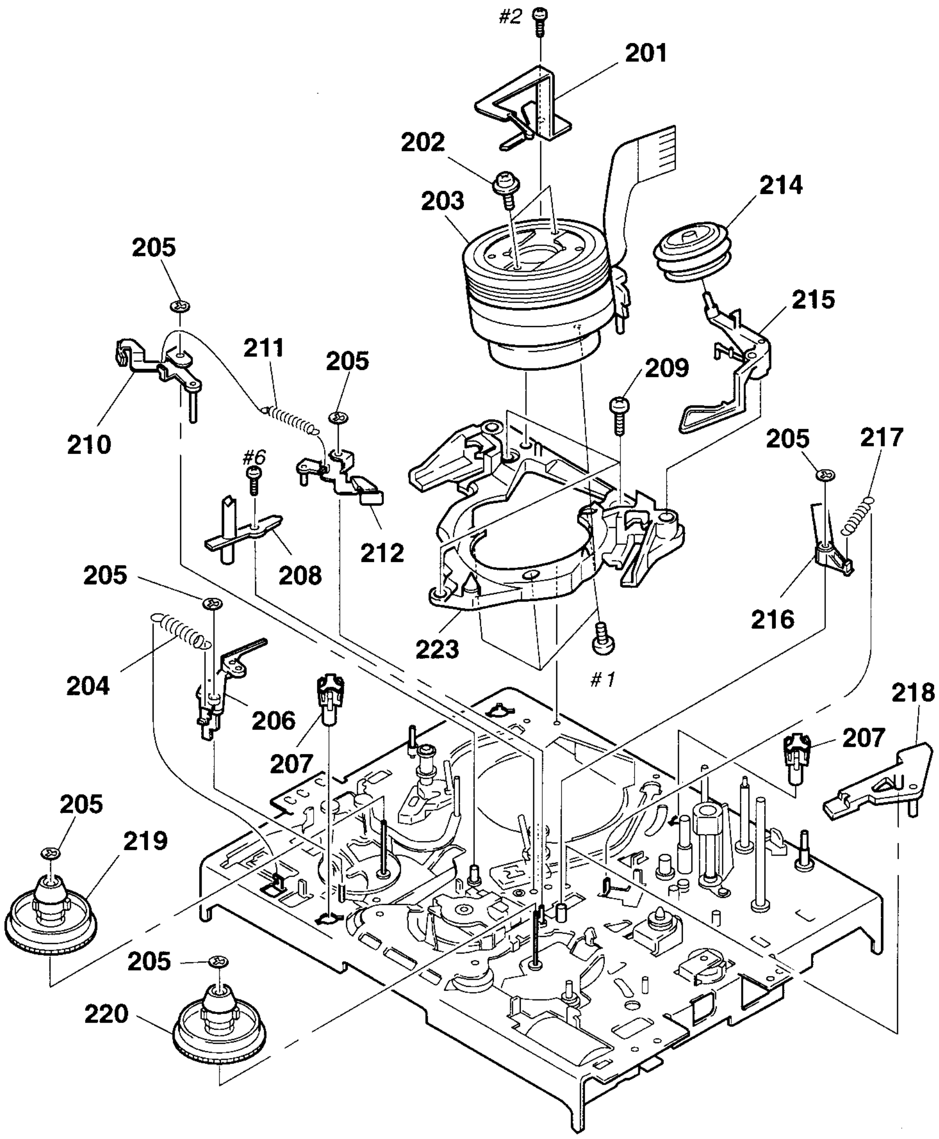
Ref. No.	Part No.	Description	Remarks
51	3-966-229-01	INSULATOR (ST)	
52	3-970-608-21	SUMITITE (B3), +BV	
53	3-959-381-01	BASE (L), MD	
54	3-966-237-01	HOLDER (ST), MA	
* 55	A-6791-181-A	MA-286 BOARD, COMPLETE(720VP)	
* 55	A-6791-183-A	MA-286 BOARD, COMPLETE(720UX)	
* 55	A-6791-185-A	MA-286 BOARD, COMPLETE(717VC,720VC)	
* 55	A-6791-190-A	MA-286 BOARD, COMPLETE(715B,720B)	
* 55	A-6791-192-A	MA-286 BOARD, COMPLETE(720EE)	
* 55	A-6791-194-A	MA-286 BOARD, COMPLETE(720EX)	
* 55	A-6791-196-A	MA-286 BOARD, COMPLETE(720NP)	
* 55	A-6791-198-A	MA-286 BOARD, COMPLETE(720NC,725)	
* 55	A-6791-200-A	MA-286 BOARD, COMPLETE(570EG)	
* 55	A-6791-204-A	MA-286 BOARD, COMPLETE(570EE)	
* 55	A-6791-206-A	MA-286 BOARD, COMPLETE(720BZ)	
* 55	A-6791-207-A	MA-286 BOARD, COMPLETE(720EG)	
* 55	A-6791-211-A	MA-286 BOARD, COMPLETE(325)	
* 55	A-6791-214-A	MA-286 BOARD, COMPLETE(475)	
* 56	A-6791-187-A	RP-217 BOARD, COMPLETE	(EXCEPT 325,475,570)
* 56	A-6791-201-A	RP-217 BOARD, COMPLETE(570)	
* 56	A-6791-212-A	RP-217 BOARD, COMPLETE(325)	
* 56	A-6791-215-A	RP-217 BOARD, COMPLETE(475)	
57	3-960-274-01	SPACER, LED	
58	3-960-273-01	SPACER, TOP/END	
* 59	A-6791-186-A	PS-385 BOARD, COMPLETE	
60	3-957-819-01	FOOT	
D100	8-719-048-26	DIODE GL528V1	
Q100	8-729-025-92	PHOTOTRANSISTOR PT380F	
Q101	8-729-025-92	PHOTOTRANSISTOR PT380F	

5-1-3. MECHANISM DECK ASSEMBLY-1



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	A-6759-603-A	FL BLOCK ASSY		165	1-506-485-11	PIN, CONNECTOR 6P	
152	3-958-467-01	SPRING, TENSION COIL		166	3-960-439-02	SPRING (ACE), COMPRESSION	
153	3-970-471-01	SPRING, TORSION		167	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
154	3-958-488-03	PLATE, LIGHT GUIDE, END SENSOR		168	3-958-491-01	BASE, ACE	
155	3-970-473-01	PLATE, LIGHT GUIDE, TOP SENSOR		169	A-6746-072-A	PRESS BLOCK ASSY, PINCH	
				170	3-958-505-01	SPRING (SOFT BRAKE T), TENSION	
157	3-958-487-01	SPRING, (ACE) TORSION COIL					
158	1-500-144-11	HEAD, FE		171	3-958-455-01	SPRING (PINCH), TENSION	
159	X-3945-348-2	FEH ASSY		172	3-958-151-01	GEAR, ELEVATOR	
160	3-962-298-01	BRACKET, TG7 TAPE		173	3-958-454-01	OPNER, LID	
161	X-3944-797-1	TG8 ASSY		174	3-958-501-01	SCREW, ACE ADJUSTMENT	
				175	3-958-153-01	GEAR, PRESS	
162	3-958-421-01	HOLDER, TG8					
163	3-958-152-01	GEAR, TG8		176	3-958-462-01	SPRING (RVS BRAKE), TENSION	
164	A-6736-105-A	ACE BLOCK ASSY		177	X-3943-885-1	ARM ASSY, RVS BRAKE	
				178	X-3943-882-1	BRAKE (T) ASSY, SOFT	

5-1-4. MECHANISM DECK ASSEMBLY-2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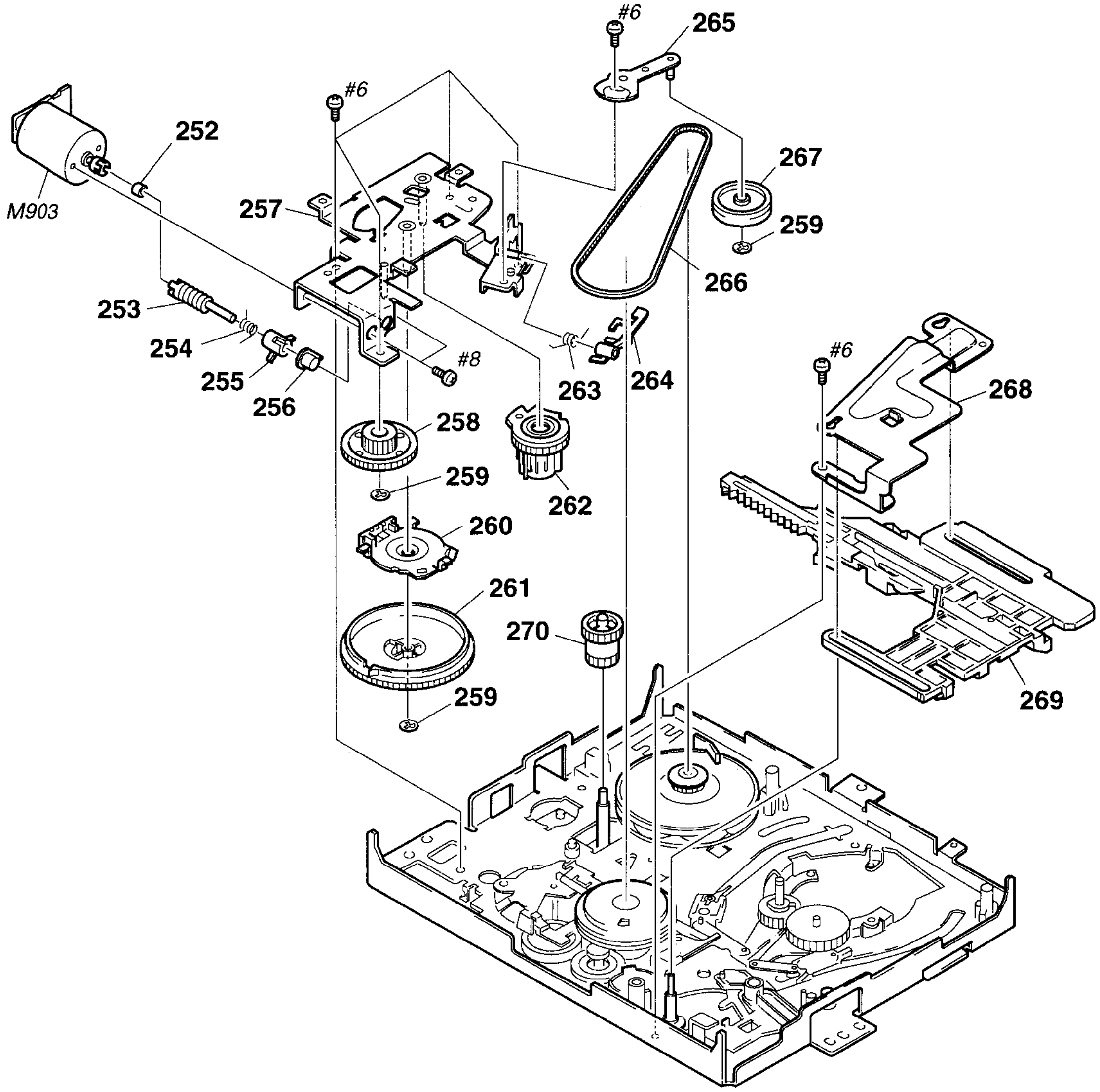
Ref. No.	Part No.	Description	Remarks
201	X-3943-899-8	GROUND ASSY, SHAFT	
202	2-643-205-01	SCREW	
203	1-759-183-11	DRUM ASSY DZH-78A-R (325)	
203	1-759-371-11	DRUM ASSY DZH-65A-R (475, 570)	
203	1-759-373-11	DRUM ASSY DZH-86A-R (EXCEPT 325, 475, 570)	
204	3-958-443-01	SPRING, STRETCH COIL SPRING	
205	3-669-595-00	WASHER (2), STOPPER	
206	3-958-450-01	BRAKE (S), SOFT	
207	3-958-390-01	SHAFT, PC BOARD	
208	3-958-391-01	PLATE, LIGHT GUIDE, LED	
209	3-961-441-01	SCREW (3x8)	
210	X-3945-443-1	BRAKE (S) ASSY, MAIN	
211	3-958-517-01	SPRING, TENSIONCOIL	
212	X-3945-444-1	ARM (T) ASSY, MAIN BRAKE	
214	X-3947-255-1	ROLLER ASSY, HC	
215	3-975-724-01	ARM, HC	
216	3-960-139-01	ARM, NEUTRALITY	
217	3-958-535-01	SPRING, TENSION	
218	3-960-138-01	ARM, PENDULUM COMPULSION	
219	X-3943-902-1	TABLE, REEL (S) ASSY	
220	X-3943-903-1	TABLE, REEL (T) ASSY	
223	3-969-629-01	DRUM BASE	

5-1-5. MECHANISM DECK ASSEMBLY-3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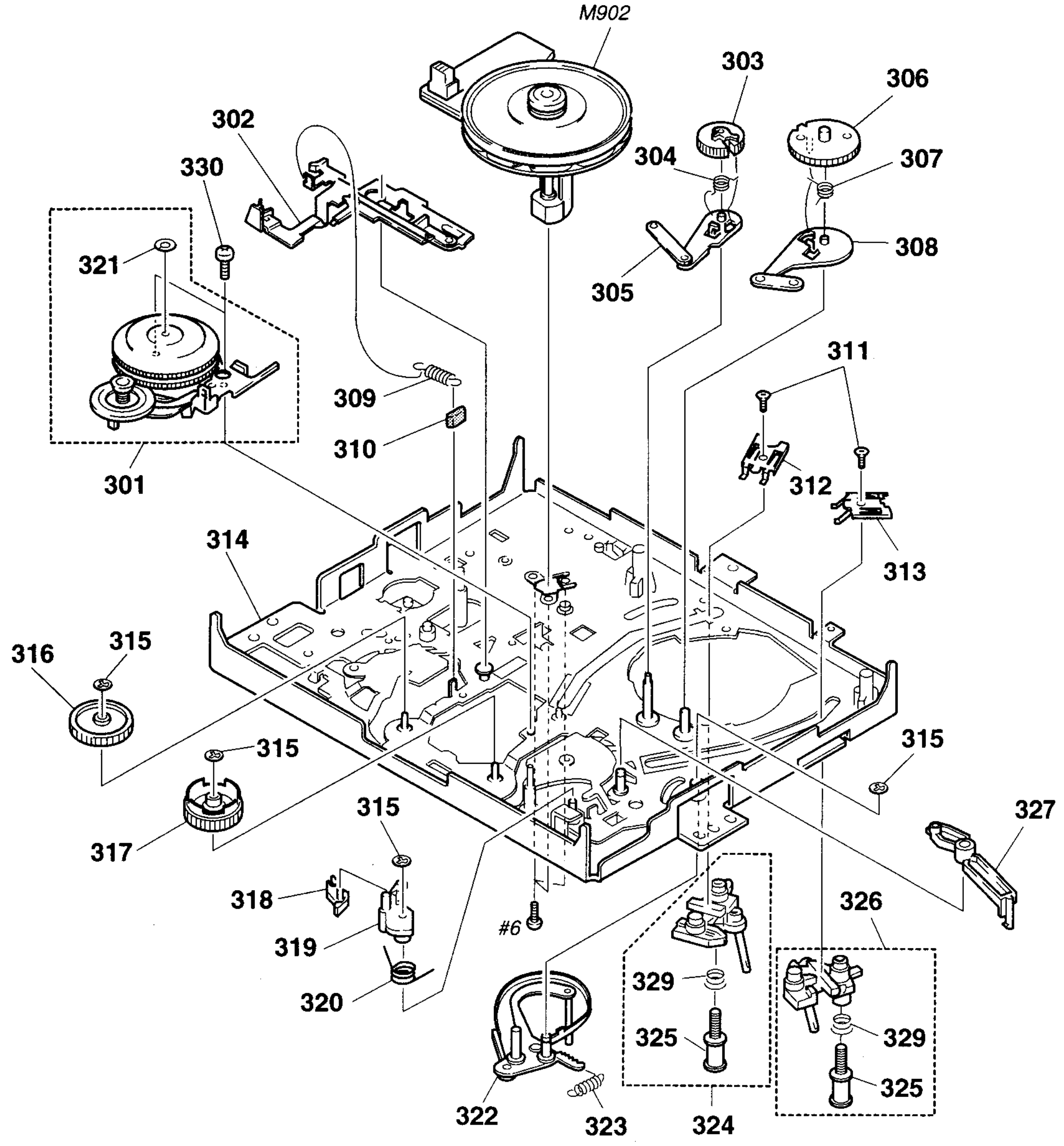
Ref. No.	Part No.	Description	Remarks
252	3-959-840-11	RUBBER, JOINT	
253	3-958-159-01	WORM	
254	3-958-460-01	SPRING, ONE-WAY	
255	3-958-160-01	PROPELLOR	
256	3-958-155-01	BEARING, CAM MOTOR	
* 257	X-3943-884-1	CHASSIS ASSY, CAM MOTOR	
258	3-958-157-02	WHEEL, WORM	
259	3-669-595-00	WASHER (2), STOPPER	
260	1-762-076-11	SWITCH, ROTARY	
261	3-958-161-07	GEAR, CAM	
262	3-958-156-03	GEAR, FL DRIVING	
263	3-958-445-01	SPRING,TORSIONCOIL(CAP BRAKE)	
264	X-3943-888-1	BRAKE ASSY, CAP	
265	X-3943-889-1	ARM ASSY, TENSION VEHICLE	
266	3-958-361-01	BELT, TIMING	
267	3-958-448-01	WHEEL, TENSION	
* 268	3-959-763-01	RETAINER	
269	3-958-163-04	SLIDER, MAIN	
270	3-958-162-02	GEAR,UPPER/LOWER COMMUNICATION	
M903	X-3943-883-1	MOTOR ASSY, CAM	

5-1-6. MECHANISM DECK ASSEMBLY-4



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Ref. No.	Part No.	Description	Remarks
301	A-6739-102-A	RKB BLOCK ASSY	
302	X-3943-897-1	LEVER ASSY, TRIGGER	
303	3-958-485-02	GEAR (T), LOADING	
304	3-960-449-01	SPRING (T), TORSION COIL	
305	X-3943-891-3	LEVER (T) ASSY, LOADING	
306	3-958-476-01	GEAR (S), LOADING	
307	3-960-448-01	SPRING (S), TORSION COIL	
308	X-3943-890-2	LEVER (S) ASSY, LOADING	
309	3-958-529-01	SPRING (MOMENT), TENSION	
310	3-959-840-11	RUBBER, JOINT	
311	3-960-720-01	SCREW	
312	3-960-688-01	SPRING, LEAF (T), LOADING	
313	3-960-687-01	SPRING, LEAF (S), LOADING	
314	X-3945-485-4	CHASSIS ASSY, MECHANICAL	
315	3-669-595-00	WASHER (2), STOPPER	
316	3-962-960-01	GEAR (T-K), IDLER	
317	3-962-959-01	GEAR (S-K), IDLER	
318	3-958-533-01	CLAW, S WINDING	
319	3-958-532-01	ARM, S WINDING	
320	3-958-534-01	SPRING, TORSION	
321	3-966-092-01	RING, RETAINING, SLIT WASHER	
322	X-3943-886-1	TG1 ASSY	
323	3-958-492-01	SPRING (TG1), TENSION COIL	
324	A-6750-325-A	T BLOCK ASSY, SHUTTLE	
325	X-3944-378-1	ROLLER ASSY, GUIDE	
326	A-6750-316-A	SHUTTLE (S) BLOCK ASSY	
327	3-958-504-01	ARM, FIXED RELEASE	
329	3-965-178-01	SPRING	
M902	1-698-409-14	MOTOR, DC (CAPSTAN)	

5-2. ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board naame.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

Ref. No.	Part No.	Description	Remarks
*	A-6790-203-A	DM-62 BOARD, COMPLETE **********************	
			(Ref.No.: 3,000 Series)
		< CONNECTOR >	
CN440	1-695-947-11	CONNECTOR, BOARD TO BOARD 10P	
CN441	1-774-471-41	CONNECTOR, FFC/FPC 5P(570)	
		< RESISTOR >	
R440	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R455	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R456	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R458	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R459	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R461	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R462	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R463	1-216-073-00	METAL GLAZE 10K 5%	1/10W
		< SWITCH >	
S441	1-571-977-11	SWITCH, TACTIL(EJECT)	
S442	1-571-977-11	SWITCH, TACTIL(REW)(570)	
S443	1-571-977-11	SWITCH, TACTIL(FF)(570)	
S444	1-571-977-11	SWITCH, TACTIL(PAUSE)	
S445	1-571-977-11	SWITCH, TACTIL(REC)	
S447	1-571-977-11	SWITCH, TACTIL(REW)(EXCEPT 570)	
S448	1-571-977-11	SWITCH, TACTIL(FF)(EXCEPT 570)	
S449	1-571-977-11	SWITCH, TACTIL(STOP)(EXCEPT 570)	
S450	1-571-977-11	SWITCH, TACTIL(PLAY)(EXCEPT 570)	
*	A-6791-182-A	FR-119 BOARD, COMPLETE (720VP) **********************	
*	A-6791-184-A	FR-119 BOARD, COMPLETE (720UX) **********************	
*	A-6791-188-A	FR-119 BOARD, COMPLETE (717VC,720VC) **********************	
*	A-6791-191-A	FR-119 BOARD, COMPLETE (715B,720B) **********************	
*	A-6791-193-A	FR-119 BOARD, COMPLETE (720EE) **********************	
*	A-6791-195-A	FR-119 BOARD, COMPLETE (720EX) **********************	
*	A-6791-197-A	FR-119 BOARD, COMPLETE (720NP) **********************	
*	A-6791-199-A	FR-119 BOARD, COMPLETE (720NC,725NC) **********************	
*	A-6791-202-A	FR-119 BOARD, COMPLETE (570EG) **********************	
*	A-6791-205-A	FR-119 BOARD, COMPLETE (570EE) **********************	
*	A-6791-208-A	FR-119 BOARD, COMPLETE (720EG) **********************	

Ref. No.	Part No.	Description	Remarks
*	A-6791-209-A	FR-119 BOARD, COMPLETE (720BZ) **********************	
*	A-6791-213-A	FR-119 BOARD, COMPLETE (325) **********************	
*	A-6791-216-A	FR-119 BOARD, COMPLETE (475) **********************	
			(Ref.No.: 3,000 Series)
*	3-972-888-01	HOLDER (85), FL	
		< CAPACITOR >	
C400	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C401	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (570)
C403	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V (570)
C408	1-165-319-11	CERAMIC CHIP 0.1uF	50V
C471	1-126-924-11	ELECT 330uF 20%	10V
C472	1-126-916-11	ELECT 1000uF 20%	6.3V
C473	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C474	1-125-705-11	CAPACITOR 0.22F 0	5.5V
C475	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C476	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C477	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C478	1-164-159-21	CERAMIC 0.1uF	50V
C479	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C480	1-163-099-00	CERAMIC CHIP 18PF 5%	50V
C481	1-163-231-11	CERAMIC CHIP 15PF 5%	50V
C482	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C483	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C485	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C489	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
* CN401	1-691-407-11	CONNECTOR, BOARD TO BOARD 10P	
CN402	1-695-390-31	PIN, CONNECTOR (PC BOARD) 29P	
CN403	1-506-470-11	PIN, CONNECTOR 5P	(570)
		< DIODE >	
D401	8-719-108-12	DIODE RD9.1E-W	(570)
D403	8-719-108-12	DIODE RD9.1E-W	(570)
D405	8-719-056-07	DIODE SLR-342MC-A-47	
D408	8-719-110-08	DIODE RD8.2ES-B2	
D470	8-719-200-82	DIODE 11ES2	
D471	8-719-200-82	DIODE 11ES2	
		< TERMINAL BOARD >	
ET400	1-537-770-21	TERMINAL BOARD, GROUND	(570)

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC400	8-749-011-05	IC GP1U28X	
IC470	8-752-880-60	IC CXP82948-014Q (325,475,570,720EE,720EG)	
IC470	8-752-880-61	IC CXP82948-015Q (715B,717VC,720B,720BZ,720NC,720NP,720VC,720VP,725NC)	
IC470	8-752-880-62	IC CXP82948-016Q(720EX,720UX)	
IC471	8-759-248-87	IC MM1256XF-BE	
IC472	8-759-518-23	IC X24C04S8	
		< JUMPER RESISTOR >	
JR401	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR402	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR403	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR404	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR406	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR407	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR408	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR410	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR411	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR412	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR414	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR416	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR417	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR419	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR420	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR421	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR422	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR423	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR425	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR429	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR430	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR431	1-216-296-91	CONDUCTOR, CHIP(3216)	
		< JUMPER RESISTOR >	
JS400	1-216-295-91	CONDUCTOR, CHIP(2012) (570)	
JS408	1-216-295-91	CONDUCTOR, CHIP(2012) (570)	
		< COIL >	
L470	1-408-970-21	INDUCTOR 10uH	
		< FLUORESCENT INDICATOR >	
ND400	1-517-590-11	TUBE, FLUORESCENT INDICATOR (EXCEPT 715B,720B,720BZ)	
ND400	1-517-590-21	TUBE, FLUORESCENT INDICATOR (715B,720B,720BZ)	
		< JACK >	
PJ401	1-774-510-11	JACK, PIN 2P (LINE IN-2) (570)	
		< TRANSISTOR >	
Q400	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R400	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R401	1-216-022-00	METAL CHIP 75 5% 1/10W	(570)
R403	1-216-041-00	METAL CHIP 470 5% 1/10W	(570)

Ref. No.	Part No.	Description	Remarks
R405	1-216-029-00	METAL CHIP 150 5%	1/10W
R410	1-216-295-91	CONDUCTOR, CHIP(2012) (570)	
R411	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R412	1-216-075-00	METAL CHIP 12K 5%	1/10W
R413	1-216-075-00	METAL CHIP 12K 5%	1/10W
R414	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R415	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R416	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R418	1-216-073-00	METAL CHIP 10K 5%	1/10W
R419	1-216-073-00	METAL CHIP 10K 5%	1/10W
R420	1-216-073-00	METAL CHIP 10K 5%	1/10W
R421	1-216-073-00	METAL CHIP 10K 5%	1/10W
R422	1-216-073-00	METAL CHIP 10K 5%	1/10W
R423	1-216-073-00	METAL CHIP 10K 5%	1/10W
R424	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R472	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R473	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R474	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R475	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R476	1-216-073-00	METAL CHIP 10K 5%	1/10W
R477	1-216-073-00	METAL CHIP 10K 5%	1/10W
R478	1-216-113-00	METAL CHIP 470K 5%	1/10W
R479	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R480	1-216-113-00	METAL CHIP 470K 5%	1/10W
R481	1-249-413-11	CARBON 470 5%	1/4W F
R482	1-249-413-11	CARBON 470 5%	1/4W F
R483	1-249-417-11	CARBON 1K 5%	1/4W F
R486	1-216-095-00	METAL CHIP 82K 5%	1/10W
R487	1-216-113-00	METAL CHIP 470K 5%	1/10W
R488	1-216-295-91	CONDUCTOR, CHIP(2012)	
		< SWITCH >	
S403	1-571-977-11	SWITCH, TACTIL(STANDBY/POWER ON)	
S404	1-571-977-11	SWITCH, TACTIL(TV/VTR)	
S405	1-571-977-11	SWITCH, TACTIL(PROGRAM:+)	
S406	1-571-977-11	SWITCH, TACTIL(PROGRAM:-)	
S407	1-571-977-11	SWITCH, TACTIL(RF CHANNEL)	
S409	1-571-977-11	SWITCH, TACTIL(TAPE SPEED)(EXCEPT 325)	
S410	1-571-977-11	SWITCH, TACTIL(EDIT)	
		< VIBRATOR >	
X470	1-579-463-11	VIBRATOR, CRYSTAL 32.768kHz	
X471	1-579-930-12	VIBRATOR, CERAMIC	

Ref. No.	Part No.	Description	Remarks
*	A-6791-181-A	MA-286 BOARD, COMPLETE (720VP) **********************	
*	A-6791-183-A	MA-286 BOARD, COMPLETE (720UX) **********************	
*	A-6791-185-A	MA-286 BOARD, COMPLETE (717VC,720VC) **********************	
*	A-6791-190-A	MA-286 BOARD, COMPLETE (715B,720B) **********************	
*	A-6791-192-A	MA-286 BOARD, COMPLETE (720EE) **********************	
*	A-6791-194-A	MA-286 BOARD, COMPLETE (720EX) **********************	
*	A-6791-196-A	MA-286 BOARD, COMPLETE (720NP) **********************	
*	A-6791-198-A	MA-286 BOARD, COMPLETE (720NC,725NC) **********************	
*	A-6791-200-A	MA-286 BOARD, COMPLETE (570EG) **********************	

Ref. No.	Part No.	Description			Remarks
*	A-6791-204-A	MA-286 BOARD, COMPLETE (570EE) ***********************			
*	A-6791-206-A	MA-286 BOARD, COMPLETE (720BZ) ***********************			
*	A-6791-207-A	MA-286 BOARD, COMPLETE (720EG) ***********************			
*	A-6791-211-A	MA-286 BOARD, COMPLETE (325) ***********************			
*	A-6791-214-A	MA-286 BOARD, COMPLETE (475) ***********************			
					(Ref.No.: 2,000 Series)
	1-555-110-00	CABLE, PIN			
*	3-960-273-01	SPACER, TOP END			
*	3-960-274-01	SPACER, LED			
	A-8312-814-A	PIN, LEAD, COATING			
		< CAPACITOR >			
C100	1-124-635-00	ELECT	220uF	20%	6.3V
C101	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C103	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C104	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C107	1-130-489-00	MYLAR	0.033uF	5%	50V
C108	1-137-441-11	FILM	0.027uF	5%	50V
C109	1-126-157-11	ELECT	10uF	20%	16V
C130	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C131	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C132	1-124-589-11	ELECT	47uF	20%	16V
C134	1-124-463-00	ELECT	0.1uF	20%	50V
C160	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C161	1-124-589-11	ELECT	47uF	20%	16V
C162	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C164	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C165	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C166	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C167	1-124-589-11	ELECT	47uF	20%	16V
C201	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C202	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C204	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C205	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C206	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C207	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C208	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C209	1-128-131-11	ELECT	22uF	20%	50V
C210	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C211	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C212	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C213	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C214	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C215	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT 325)
C215	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V (325)
C217	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C218	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C219	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C220	1-109-982-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C221	1-163-251-11	CERAMIC CHIP	100PF	5%	50V (EXCEPT 325,475,720EE,720EG)
C222	1-163-038-91	CERAMIC CHIP	0.1uF		25V (EXCEPT 325,475,720EE,720EG)
C223	1-126-154-11	ELECT	47uF	20%	6.3V
C224	1-162-306-11	CERAMIC	0.01uF	30%	16V
C225	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C226	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C228	1-126-157-11	ELECT	10uF	20%	16V
C229	1-162-306-11	CERAMIC	0.01uF	30%	16V
C230	1-124-584-00	ELECT	100uF	20%	10V
C231	1-126-157-11	ELECT	10uF	20%	16V
C232	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C233	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C234	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C235	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C236	1-126-160-11	ELECT	1uF	20%	50V
C237	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C238	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C239	1-124-584-00	ELECT	100uF	20%	10V
C240	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C241	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C242	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C243	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C244	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C245	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C246	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C247	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C248	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C249	1-126-154-11	ELECT	47uF	20%	6.3V
C250	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C251	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C252	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C253	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C254	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C255	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C291	1-126-157-11	ELECT	10uF	20%	16V (715B,720B,720BZ)
C302	1-126-154-11	ELECT	47uF	20%	6.3V
C303	1-126-160-11	ELECT	1uF	20%	50V (325,475,570)
C304	1-126-160-11	ELECT	1uF	20%	50V (570)
C305	1-126-160-11	ELECT	1uF	20%	50V
C306	1-126-160-11	ELECT	1uF	20%	50V
C307	1-126-157-11	ELECT	10uF	20%	16V
C308	1-124-229-00	ELECT	33uF	20%	10V
C309	1-126-163-11	ELECT	4.7uF	20%	50V
C310	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C311	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C312	1-137-370-11	FILM	0.01uF	5%	50V
C313	1-126-157-11	ELECT	10uF	20%	16V
C314	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C315	1-126-160-11	ELECT	1uF	20%	50V
C317	1-126-163-11	ELECT	4.7uF	20%	50V
C318	1-124-589-11	ELECT	47uF	20%	16V
C361	1-126-960-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C362	1-126-960-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C363	1-126-960-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C364	1-126-960-11	ELECT	1uF	20%	50V (715B,717VC,720,725)

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Ref. No.	Part No.	Description			Remarks
C367	1-126-960-11	ELECT	1uF	20%	50V (EXCEPT 325,475,570,720EE,720EG)
C368	1-126-960-11	ELECT	1uF	20%	50V (EXCEPT 325,475,570,720EE,720EG)
C369	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C370	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C371	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C372	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C373	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C374	1-126-960-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C375	1-137-378-11	FILM	0.22uF	5%	50V (715B,717VC,720,725)
C376	1-137-437-11	FILM	0.0056uF	5%	50V (715B,717VC,720,725)
C377	1-126-967-11	ELECT	47uF	20%	50V (715B,717VC,720,725)
C378	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C379	1-126-961-11	ELECT	2.2uF	20%	50V (715B,717VC,720,725)
C380	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C381	1-126-967-11	ELECT	47uF	20%	50V (715B,717VC,720,725)
C382	1-137-437-11	FILM	0.0056uF	5%	50V (715B,717VC,720,725)
C383	1-137-378-11	FILM	0.22uF	5%	50V (715B,717VC,720,725)
C384	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (715B,717VC,720,725)
C385	1-126-933-11	ELECT	100uF	20%	16V (715B,717VC,720,725)
C386	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (715B,717VC,720,725)
C387	1-126-933-11	ELECT	100uF	20%	16V (715B,717VC,720,725)
C389	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (715B,717VC,720,725)
C390	1-126-160-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C391	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (715B,717VC,720,725)
C500	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C501	1-124-584-00	ELECT	100uF	20%	10V
C502	1-163-245-11	CERAMIC CHIP	56PF	5%	50V (325,475,570,715B,720B,720BZ,720EE,720EG)
C503	1-126-160-11	ELECT	1uF	20%	50V
C504	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C505	1-163-245-11	CERAMIC CHIP	56PF	5%	50V (325,475,570,715B,720B,720BZ,720EE,720EG)
C506	1-130-481-00	MYLAR	0.0068uF	5%	50V
C507	1-124-499-11	ELECT,NONPOLAR	1uF	20%	50V
C508	1-137-372-11	FILM	0.022uF	5%	50V
C509	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C510	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C511	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C512	1-124-584-00	ELECT	100uF	20%	10V
C513	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C514	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C518	1-124-465-00	ELECT	0.47uF	20%	50V
C519	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C520	1-163-038-91	CERAMIC CHIP	0.1uF		25V (325,475,570,715B,720B,720BZ,720EE,720EG)
C540	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C541	1-126-967-11	ELECT	47uF	20%	16V
C542	1-126-967-11	ELECT	47uF	20%	16V
C544	1-126-935-11	ELECT	470uF	20%	6.3V
C574	1-126-964-11	ELECT	10uF	20%	50V (570EG,715B,717VC,720,725)
C575	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (715B,717VC,720,725)
C576	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C577	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C578	1-126-157-11	ELECT	10uF	20%	16V (715B,717VC,720,725)
C579	1-126-157-11	ELECT	10uF	20%	16V (715B,717VC,720,725)
C702	1-126-964-11	ELECT	10uF	20%	50V
C704	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C705	1-126-964-11	ELECT	10uF	20%	50V
C706	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C707	1-126-933-11	ELECT	100uF	20%	16V
C708	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C709	1-126-933-11	ELECT	100uF	20%	16V
C710	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C711	1-126-967-11	ELECT	47uF	20%	16V
C712	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C713	1-126-933-11	ELECT	100uF	20%	16V
C714	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C715	1-126-965-11	ELECT	22uF	20%	50V
C730	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C731	1-126-964-11	ELECT	10uF	20%	50V (715B,717VC,720,725)
C850	1-163-038-91	CERAMIC CHIP	0.1uF		25V (EXCEPT 570EE,720EE)
C851	1-126-157-11	ELECT	10uF	20%	16V (EXCEPT 570EE,720EE)
C852	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V (EXCEPT 570EE,720EE)
C853	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V (EXCEPT 570EE,720EE)
C855	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V (EXCEPT 570EE,720EE)
C856	1-163-038-91	CERAMIC CHIP	0.1uF		25V (EXCEPT 570EE,720EE)
C922	1-124-584-00	ELECT	100uF	20%	10V (570EG,715B,717VC,720B,720BZ,720NP,720VC)
C923	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (570EG,715B,717VC,720B,720BZ,720NP,720VC)
C924	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (570EG,715B,717VC,720B,720BZ,720NP,720VC)

Ref. No.	Part No.	Description	Remarks
C925	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(715B,717VC,720B,720BZ,720NP,720VC)
C926	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C927	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C928	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C930	1-126-967-11	ELECT 47uF 20% 16V	(715B,717VC,720B,720BZ,720NP,720VC)
C931	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(715B,717VC,720B,720BZ,720NP,720VC)
C932	1-126-933-11	ELECT 100uF 20% 16V	(715B,717VC,720B,720BZ,720NP,720VC)
C933	1-126-964-11	ELECT 10uF 20% 50V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C934	1-126-964-11	ELECT 10uF 20% 50V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C935	1-126-964-11	ELECT 10uF 20% 50V	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
C936	1-126-964-11	ELECT 10uF 20% 50V	(715B,717VC,720B,720BZ,720NP,720VC)
C937	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(715B,717VC,720B,720BZ,720NP,720VC)
C938	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(715B,717VC,720B,720BZ,720NP,720VC)
C951	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	(EXCEPT 325,475,570EE,720EG,720EE)
		< CONNECTOR >	
CN101	1-506-470-11	PIN, CONNECTOR 5P	
* CN102	1-766-538-11	CONNECTOR, BOARD TO BOARD 8P	
* CN103	1-766-537-11	CONNECTOR (HMD) 5P	
* CN104	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
CN161	1-506-470-11	PIN, CONNECTOR 5P	(570)
CN163	1-695-352-11	PIN, CONNECTOR (PC BOARD) 29P	
CN164	1-506-469-11	PIN, CONNECTOR 4P	
CN305	1-573-852-11	CONNECTOR, BOARD TO BOARD 20P	
CN306	1-766-718-11	CONNECTOR, BOARD TO BOARD 17P	
CN540	1-568-016-21	SOCKET, PIN 21P(LINE-1(TV))	
CN600	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN930	1-568-016-21	SOCKET, PIN 21P(DECODER/LINE-2 IN)	(EXCEPT 325,475,570EE,720EE,720EG)
		< TRIMMER >	
CT500	1-141-334-11	CAP, TRIMMER 30PF	
		< DIODE >	
D100	8-719-048-26	DIODE GL528V1	
D107	8-719-911-19	DIODE 1SS119	
D108	8-719-200-82	DIODE 11ES2	
D131	8-719-200-82	DIODE 11ES2	
D160	8-719-200-82	DIODE 11ES2	
D301	8-719-911-19	DIODE 1SS119	(325,475,570)
D361	8-719-911-19	DIODE 1SS119	
D501	8-719-911-19	DIODE 1SS119	
D502	8-719-911-19	DIODE 1SS119	
D503	8-719-911-19	DIODE 1SS119	
D540	8-719-109-97	DIODE RD6.8ES-B2	
D541	8-719-109-97	DIODE RD6.8ES-B2	
D542	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720,725)
D543	8-719-109-97	DIODE RD6.8ES-B2	
D544	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720,725)
D545	8-719-109-97	DIODE RD6.8ES-B2	
D546	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720,725)
D547	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720,725)
D548	8-719-109-97	DIODE RD6.8ES-B2	
D549	8-719-109-97	DIODE RD6.8ES-B2	
D551	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720B,720BZ,720NP,720VC)
D552	8-719-921-86	DIODE MTZJ-13	
D553	8-719-109-97	DIODE RD6.8ES-B2	
D554	8-719-109-97	DIODE RD6.8ES-B2	
D700	8-719-911-19	DIODE 1SS119	
D701	8-719-800-76	DIODE 1SS226	
D702	8-719-982-26	DIODE MTZJ-33B	
D703	8-719-109-85	DIODE RD5.1ES-B2	
D704	8-719-911-19	DIODE 1SS119	
D930	8-719-200-82	DIODE 11ES2	(715B,717VC,720B,720BZ,720NP,720VC)
D932	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D933	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D934	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720B,720BZ,720NP,720VC)
D935	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D936	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D937	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720B,720BZ,720NP,720VC)
D938	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720B,720BZ,720NP,720VC)
D939	8-719-109-97	DIODE RD6.8ES-B2	(715B,717VC,720B,720BZ,720NP,720VC)
D940	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D941	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D942	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D943	8-719-109-97	DIODE RD6.8ES-B2	(EXCEPT 325,475,570EE,720EE,720EG)
D944	8-719-109-97	DIODE RD6.8ES-B2	
D945	8-719-982-09	DIODE MTZJ-T-77-4.3	(EXCEPT 325,475,570EE,720EE,720EG)
		< FILTER >	
FL540	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720,725)
FL541	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720,725)
FL542	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720,725)
FL543	1-236-163-11	ENCAPSULATED COMPONENT	
FL544	1-236-163-11	ENCAPSULATED COMPONENT	
FL545	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720,725)
FL930	1-236-163-11	ENCAPSULATED COMPONENT	(EXCEPT 325,475,570EE,720EE,720EG)
FL931	1-236-163-11	ENCAPSULATED COMPONENT	(EXCEPT 325,475,570EE,720EE,720EG)
FL932	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720B,720BZ,720NP,720VC)
FL933	1-236-163-11	ENCAPSULATED COMPONENT	(715B,717VC,720B,720BZ,720NP,720VC)

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Ref. No.	Part No.	Description	Remarks
		< IC >	
IC100	8-759-702-02	IC NJM062M	
IC130	8-759-353-59	IC LB1643	
IC160	8-752-880-93	IC CXP87852-008Q (325)	
IC160	8-752-880-94	IC CXP87852-009Q (475EG,570EE,720EE)	
IC160	8-752-880-95	IC CXP87852-010Q (EXCEPT 325,475,570EE,720EE)	
IC201	8-759-439-48	IC LA71511M	
IC202	8-759-439-50	IC LC89977M-TE-L	
IC291	1-801-655-11	IC SECAM MODULE (715B,720B,720BZ)	
IC360	8-759-445-21	IC TDA9603H/N2,518 (715B,717VC,720,725)	
IC361	8-759-708-05	IC NJM78L05A (715B,717VC,720,725)	
IC500	8-752-433-84	IC LC74790M-VSX8903-TLM (EXCEPT 325,475,570,720EE,720EG)	
IC500	8-759-433-86	IC LC74761M-9624-TLM (325,475,570,720EE,720EG)	
IC570	8-759-909-71	IC BA4558F (715B,717VC,720,725)	
IC850	8-759-289-73	IC SDA5649X-GEG (EXCEPT 570EE,720EE)	
IC920	8-759-438-16	IC STV6400D (570EG,715B,717VC,720B,720BZ,720NP,720VC)	
IC930	8-759-296-72	IC PQ12SZ5U (715B,717VC,720B,720BZ,720NP,720VC)	
IC931	8-759-932-64	IC BU4052BF (570EG,715B,717VC,720B,720BZ,720NP,720VC)	
		< JACK >	
J540	1-565-319-71	JACK, PIN 2P(AUDIO OUT) (715B,717VC,720,725)	
		< JUMPER RESISTOR >	
JR001	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR002	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR003	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR004	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR005	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR006	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR007	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR008	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR009	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR010	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR011	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR012	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR013	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR014	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR015	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR016	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR017	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR018	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR019	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR020	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR021	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR022	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR023	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR024	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR025	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR026	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR027	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR028	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR029	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR030	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR031	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR032	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR033	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR034	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR035	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR036	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR037	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR038	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR039	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR040	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR041	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR042	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR043	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR044	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR045	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR046	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR047	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR048	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR049	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR050	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR051	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR052	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR053	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR054	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR055	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR056	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR057	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR058	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR059	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR060	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR061	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR062	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR063	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR064	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR065	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR066	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR067	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR068	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR069	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR070	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR071	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR072	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR073	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR074	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR075	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR076	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR077	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR078	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR079	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR080	1-216-295-91	CONDUCTOR, CHIP(2012)	
JR084	1-216-295-91	CONDUCTOR, CHIP(2012)	
		< JUMPER RESISTOR >	
JS201	1-216-295-91	CONDUCTOR, CHIP(2012)	
JS291	1-216-295-91	CONDUCTOR, CHIP(2012)(715B,720B,720BZ)	
JS292	1-216-295-91	CONDUCTOR, CHIP(2012) (EXCEPT 715B,720B,720BZ)	
JS380	1-216-295-91	CONDUCTOR, CHIP(2012) (715B,717VC,720,725)	
JS381	1-216-295-91	CONDUCTOR, CHIP(2012)(325,475,570)	

Ref. No.	Part No.	Description	Remarks
JS385	1-216-295-91	CONDUCTOR, CHIP(2012)(325,475,570)	
JS389	1-216-295-91	CONDUCTOR, CHIP(2012)	(715B,717VC,720,725)
JS390	1-216-295-91	CONDUCTOR, CHIP(2012)(325,475,570)	
JS392	1-216-295-91	CONDUCTOR, CHIP(2012)(570EG)	
JS393	1-216-296-91	CONDUCTOR, CHIP(3216)(570EG)	
JS540	1-216-296-91	CONDUCTOR, CHIP(3216)(325,475,570)	
JS541	1-216-295-91	CONDUCTOR, CHIP(2012)(325,475,570)	
JS700	1-216-296-91	CONDUCTOR, CHIP(3216)(720EE)	
JS701	1-216-295-91	CONDUCTOR, CHIP(2012)(720EE)	
JS805	1-216-295-91	CONDUCTOR, CHIP(2012)	
JS924	1-216-055-00	METAL CHIP 1.8K 5% 1/10W (570EG)	
JS925	1-216-295-91	CONDUCTOR, CHIP(2012)(570EG)	
JS930	1-216-295-91	CONDUCTOR, CHIP(2012)(570EG)	
JS931	1-216-295-91	CONDUCTOR, CHIP(2012)	(715B,720B,720BZ,720NP,720VC)
JS932	1-216-296-91	CONDUCTOR, CHIP(3216)(570EG)	
		< COIL >	
L101	1-408-982-11	INDUCTOR 100uH	
L161	1-408-970-21	INDUCTOR 10uH	
L201	1-408-977-21	INDUCTOR 39uH	
L202	1-408-982-11	INDUCTOR 100uH	
L203	1-410-330-31	INDUCTOR 22uH (715B,720B,720BZ)	
L204	1-408-970-21	INDUCTOR 10uH	
L205	1-408-982-11	INDUCTOR 100uH	
L206	1-408-970-21	INDUCTOR 10uH	
L207	1-408-970-21	INDUCTOR 10uH	
L291	1-408-982-11	INDUCTOR 100uH (715B,720B,720BZ)	
L292	1-410-328-31	INDUCTOR 10uH (715B,720B,720BZ)	
L301	1-408-982-11	INDUCTOR 100uH	
L361	1-408-982-11	INDUCTOR 100uH (715B,717VC,720,725)	
L500	1-408-982-11	INDUCTOR 100uH	
L501	1-408-982-11	INDUCTOR 100uH	
L502	1-410-506-11	INDUCTOR 5.6uH	
L503	1-410-513-11	INDUCTOR 22uH	(325,475,570,715B,720B,720BZ,720EE,720EG)
L540	1-408-982-11	INDUCTOR 100uH	
L700	1-408-982-11	INDUCTOR 100uH	
L701	1-408-962-21	INDUCTOR 2.2uH	
L702	1-408-962-21	INDUCTOR 2.2uH	
L703	1-408-962-21	INDUCTOR 2.2uH	
L930	1-408-982-11	INDUCTOR 100uH	(715B,717VC,720B,720BZ,720NP,720VC)
L931	1-408-982-11	INDUCTOR 100uH	(570EG,715B,717VC,720,725)
		< PHOTO INTERRUPTER >	
PH100	8-749-010-19	PHOTO INTERRUPTER GP3S113	
PH101	8-749-010-20	PHOTO INTERRUPTER GP3S114	
		< IC LINK >	
⚠PS130	1-533-586-31	LINK, IC 0.315A	
		< TRANSISTOR >	
Q100	8-729-025-92	PHOTO TRANSISTOR PT380F	
Q101	8-729-025-92	PHOTO TRANSISTOR PT380F	
Q102	8-729-281-53	TRANSISTOR 2SC1815-GR	
Q201	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q202	8-729-230-49	TRANSISTOR 2SC2712-YG	

Ref. No.	Part No.	Description	Remarks
Q203	8-729-421-19	TRANSISTOR UN2213 (EXCEPT 325)	
Q205	8-729-421-19	TRANSISTOR UN2213 (715B,720B,720BZ)	
Q208	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q209	8-729-216-22	TRANSISTOR 2SA1162-G	
Q210	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q211	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q291	8-729-421-19	TRANSISTOR UN2213 (715B,720B,720BZ)	
Q292	8-729-901-06	TRANSISTOR DTA144EK (715B,720B,720BZ)	
Q293	8-729-421-19	TRANSISTOR UN2213 (715B,720B,720BZ)	
Q301	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q361	8-729-422-27	TRANSISTOR 2SD601A-Q	(715B,717VC,720,725)
Q362	8-729-422-27	TRANSISTOR 2SD601A-Q	(715B,717VC,720,725)
Q362	8-729-424-67	TRANSISTOR UN2216 (325,475,570)	
Q363	8-729-422-27	TRANSISTOR 2SD601A-Q	(715B,717VC,720,725)
Q364	8-729-216-22	TRANSISTOR 2SA1162-G	(715B,717VC,720,725)
Q500	8-729-216-22	TRANSISTOR 2SA1162-G	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q502	8-729-216-22	TRANSISTOR 2SA1162-G	
Q505	8-729-216-22	TRANSISTOR 2SA1162-G	(325,475,570,715B,720B,720BZ,720EE,720EG)
Q506	8-729-422-27	TRANSISTOR 2SD601A-Q	(325,475,570,715B,720B,720BZ,720EE,720EG)
Q540	8-729-421-19	TRANSISTOR UN2213	
Q541	8-729-901-06	TRANSISTOR DTA144EK	
Q542	8-729-216-22	TRANSISTOR 2SA1162-G	
Q571	8-729-422-27	TRANSISTOR 2SD601A-Q	(570EG,715B,717VC,720,725)
Q702	8-729-027-56	TRANSISTOR DTC143TKA-T146	
Q703	8-729-216-22	TRANSISTOR 2SA1162-G	
Q704	8-729-421-19	TRANSISTOR UN2213	
Q705	8-729-216-22	TRANSISTOR 2SA1162-G	
Q707	8-729-173-38	TRANSISTOR 2SA733-K	
Q708	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
Q709	8-729-421-19	TRANSISTOR UN2213	
Q710	8-729-216-22	TRANSISTOR 2SA1162-G	
Q730	8-729-027-56	TRANSISTOR DTC143TKA-T146	(715B,717VC,720,725)
Q731	8-729-027-56	TRANSISTOR DTC143TKA-T146	(715B,717VC,720,725)
Q850	8-729-216-22	TRANSISTOR 2SA1162-G	(EXCEPT 570EE,720EE)
Q930	8-729-421-19	TRANSISTOR UN2213	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
Q931	8-729-421-19	TRANSISTOR UN2213	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
Q932	8-729-216-22	TRANSISTOR 2SA1162-G	(715B,717VC,720B,720BZ,720NP,720VC)
		< RESISTOR >	
R100	1-249-400-11	CARBON 39 5% 1/4W	F
R101	1-249-400-11	CARBON 39 5% 1/4W	F
R102	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R103	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R104	1-247-889-00	CARBON 270K 5% 1/4W	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

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Ref. No.	Part No.	Description			Remarks
R105	1-249-413-11	CARBON	470	5%	1/4W F
R106	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R107	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R108	1-216-295-91	CONDUCTOR, CHIP(2012)			
R109	1-249-421-11	CARBON	2.2K	5%	1/4W F
R110	1-249-421-11	CARBON	2.2K	5%	1/4W F
R111	1-216-103-00	METAL CHIP	180K	5%	1/10W
R112	1-249-436-11	CARBON	39K	5%	1/4W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R116	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R117	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R118	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R130	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R131	1-216-081-00	METAL CHIP	22K	5%	1/10W
R132	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R133	1-216-073-00	METAL CHIP	10K	5%	1/10W
R160	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R161	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R162	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R163	1-216-073-00	METAL CHIP	10K	5%	1/10W
R164	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R165	1-216-041-00	METAL CHIP	470	5%	1/10W
R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R167	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R168	1-216-025-91	METAL GLAZE	100	5%	1/10W
R169	1-216-025-91	METAL GLAZE	100	5%	1/10W
R170	1-216-025-91	METAL GLAZE	100	5%	1/10W
R171	1-216-025-91	METAL GLAZE	100	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-041-00	METAL CHIP	470	5%	1/10W
R175	1-216-041-00	METAL CHIP	470	5%	1/10W
R176	1-216-073-00	METAL CHIP	10K	5%	1/10W
R177	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R179	1-216-073-00	METAL CHIP	10K	5%	1/10W
R180	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R181	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R182	1-249-417-11	CARBON	1K	5%	1/4W F
R183	1-249-388-11	CARBON	3.9	5%	1/6W F
R184	1-249-388-11	CARBON	3.9	5%	1/6W F
R185	1-249-388-11	CARBON	3.9	5%	1/6W F
R186	1-249-413-11	CARBON	470	5%	1/4W F
R187	1-249-413-11	CARBON	470	5%	1/4W F
R201	1-216-041-00	METAL CHIP	470	5%	1/10W
R202	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R203	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R204	1-216-047-91	METAL GLAZE	820	5%	1/10W
R205	1-216-037-00	METAL CHIP	330	5%	1/10W
R206	1-216-037-00	METAL CHIP	330	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R210	1-216-295-91	CONDUCTOR, CHIP(2012)			
R218	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R219	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R220	1-216-039-00	METAL CHIP	390	5%	1/10W (325)
R222	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R223	1-249-401-11	CARBON	47	5%	1/4W F
R224	1-249-401-11	CARBON	47	5%	1/4W F (EXCEPT 325,475,720EE,720EG)

Ref. No.	Part No.	Description			Remarks
R225	1-216-017-91	METAL GLAZE	47	5%	1/10W
R228	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R229	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R230	1-216-045-00	METAL CHIP	680	5%	1/10W
R231	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R233	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R235	1-216-073-00	METAL CHIP	10K	5%	1/10W
R236	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R239	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R240	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R243	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (EXCEPT 325)
R291	1-216-073-00	METAL CHIP	10K	5%	1/10W (715B,720B,720BZ)
R292	1-216-073-00	METAL CHIP	10K	5%	1/10W (715B,720B,720BZ)
R293	1-216-073-00	METAL CHIP	10K	5%	1/10W (715B,720B,720BZ)
R301	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (325,475,570EE)
R301	1-216-295-91	CONDUCTOR, CHIP(2012)			(EXCEPT 325,475,570EE)
R302	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R303	1-216-079-00	METAL CHIP	18K	5%	1/10W (325,475,570)
R304	1-216-069-00	METAL CHIP	6.8K	5%	1/10W (570)
R305	1-216-069-00	METAL CHIP	6.8K	5%	1/10W (325,475,570)
R306	1-216-073-00	METAL CHIP	10K	5%	1/10W
R307	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R308	1-216-067-00	METAL CHIP	5.6K	5%	1/10W (570)
R309	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R310	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R311	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R312	1-216-079-00	METAL CHIP	18K	5%	1/10W
R313	1-216-109-00	METAL CHIP	330K	5%	1/10W
R314	1-216-035-00	METAL CHIP	270	5%	1/10W
R315	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R316	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-216-075-00	METAL CHIP	12K	5%	1/10W
R320	1-216-047-91	METAL GLAZE	820	5%	1/10W
R330	1-249-438-11	CARBON	56K	5%	1/4W (325,475,570)
R330	1-249-439-11	CARBON	68K	5%	1/4W (715B,717VC,720,725)
R331	1-249-438-11	CARBON	56K	5%	1/4W (570)
R332	1-249-439-11	CARBON	68K	5%	1/4W (325,475,570)
R361	1-216-033-00	METAL CHIP	220	5%	1/10W
R362	1-216-033-00	METAL CHIP	220	5%	1/10W (715B,717VC,720,725)
R363	1-216-033-00	METAL CHIP	220	5%	1/10W (715B,717VC,720,725)
R364	1-216-049-91	METAL GLAZE	1K	5%	1/10W (715B,717VC,720,725)
R365	1-216-049-91	METAL GLAZE	1K	5%	1/10W (715B,717VC,720,725)
R366	1-216-049-91	METAL GLAZE	1K	5%	1/10W (715B,717VC,720,725)
R367	1-216-049-91	METAL GLAZE	1K	5%	1/10W (715B,717VC,720,725)
R368	1-216-133-00	METAL CHIP	3.3M	5%	1/10W (715B,717VC,720,725)

Ref. No.	Part No.	Description				Remarks
R369	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(715B,717VC,720,725)
R370	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(715B,717VC,720,725)
R371	1-208-820-11	METAL GLAZE	39K	0.50%	1/10W	(715B,717VC,720,725)
R372	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(715B,717VC,720,725)
R373	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(715B,717VC,720,725)
R374	1-216-295-91	CONDUCTOR, CHIP(2012)				(715B,717VC,720,725)
R375	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(715B,717VC,720,725)
R376	1-216-097-91	METAL GLAZE	100K	5%	1/10W	(715B,717VC,720,725)
R377	1-216-097-91	METAL GLAZE	100K	5%	1/10W	(715B,717VC,720,725)
R378	1-216-083-00	METAL CHIP	27K	5%	1/10W	(715B,717VC,720,725)
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W	(715B,717VC,720,725)
R382	1-216-081-00	METAL CHIP	22K	5%	1/10W	(715B,717VC,720,725)
R383	1-216-081-00	METAL CHIP	22K	5%	1/10W	(715B,717VC,720,725)
R384	1-216-081-00	METAL CHIP	22K	5%	1/10W	(EXCEPT 325,475,570,720EE,720EG)
R385	1-216-081-00	METAL CHIP	22K	5%	1/10W	(EXCEPT 325,475,570,720EE,720EG)
R386	1-216-295-91	CONDUCTOR, CHIP(2012)				(715B,717VC,720,725)
R387	1-216-295-91	CONDUCTOR, CHIP(2012)				(715B,717VC,720,725)
R388	1-216-295-91	CONDUCTOR, CHIP(2012)				(715B,717VC,720,725)
R389	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(715B,717VC,720,725)
R399	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(715B,717VC,720,725)
R500	1-216-041-00	METAL CHIP	470	5%	1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R500	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(325,475,570EE,720EE,720EG,720EX,720NC,720UX,720VP,725NC)
R501	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R502	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R504	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(325,475,570,715B,720B,720BZ,720EE,720EG)
R505	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R506	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R507	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R508	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R509	1-249-437-11	CARBON	47K	5%	1/4W	
R510	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R511	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R512	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R513	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R514	1-216-295-91	CONDUCTOR, CHIP(2012)				
R516	1-216-041-00	METAL CHIP	470	5%	1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R516	1-216-295-91	CONDUCTOR, CHIP(2012)				(325,475,570EE,720EE,720EG,720EX,720NC,720UX,720VP,725NC)
R517	1-247-863-91	CARBON	22K	5%	1/4W	
R518	1-216-097-91	METAL GLAZE	100K	5%	1/10W	
R520	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(325,475,570,715B,720B,720BZ,720EE,720EG)

Ref. No.	Part No.	Description				Remarks
R521	1-216-025-91	METAL GLAZE	100	5%	1/10W	(325,475,570,715B,720B,720BZ,720EE,720EG)
R522	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(325,475,570,715B,720B,720BZ,720EE,720EG)
R540	1-249-403-11	CARBON	68	5%	1/4W	F
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R542	1-216-037-00	METAL CHIP	330	5%	1/10W	
R544	1-249-408-11	CARBON	180	5%	1/4W	F
R545	1-216-295-91	CONDUCTOR, CHIP(2012)				
R547	1-249-407-11	CARBON	150	5%	1/4W	F
R548	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R549	1-216-022-00	METAL CHIP	75	5%	1/10W	
R550	1-216-041-00	METAL CHIP	470	5%	1/10W	
R551	1-216-041-00	METAL CHIP	470	5%	1/10W	(715B,717VC,720,725)
R552	1-216-041-00	METAL CHIP	470	5%	1/10W	
R553	1-216-041-00	METAL CHIP	470	5%	1/10W	
R555	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(715B,717VC,720,725)
R559	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(715B,717VC,720,725)
R571	1-216-075-00	METAL CHIP	12K	5%	1/10W	(570EG,715B,717VC,720,725)
R572	1-216-079-00	METAL CHIP	18K	5%	1/10W	(570EG,715B,717VC,720,725)
R573	1-249-438-11	CARBON	56K	5%	1/4W	(715B,717VC,720,725)
R574	1-216-091-00	METAL CHIP	56K	5%	1/10W	(715B,717VC,720,725)
R575	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	(570EG,715B,717VC,720,725)
R700	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R701	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R704	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R707	1-216-083-00	METAL CHIP	27K	5%	1/10W	(EXCEPT 715B,720B,720BZ)
R707	1-216-105-91	METAL GLAZE	220K	5%	1/10W	(715B,720B,720BZ)
R708	1-216-021-00	METAL CHIP	68	5%	1/10W	
R710	1-216-295-91	CONDUCTOR, CHIP(2012)				
R711	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R712	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R717	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R718	1-249-417-11	CARBON	1K	5%	1/4W	F
R720	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R721	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R722	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R723	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R724	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R725	1-216-037-00	METAL CHIP	330	5%	1/10W	
R726	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R727	1-249-417-11	CARBON	1K	5%	1/4W	F
R731	1-249-413-11	CARBON	470	5%	1/4W	F (715B,717VC,720,725)
R732	1-216-049-91	METAL GLAZE	1K	5%	1/10W	(715B, 720B,720BZ)
R733	1-249-413-11	CARBON	470	5%	1/4W	F (715B,717VC,720,725)

Ref. No.	Part No.	Description	Remarks
R734	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(715B,720B,720BZ,720EE,720EG)
R850	1-216-025-91	METAL GLAZE 100 5% 1/10W	(EXCEPT 570EE,720EE)
R851	1-216-079-00	METAL CHIP 18K 5% 1/10W	(EXCEPT 570EE,720EE)
R852	1-216-083-00	METAL CHIP 27K 5% 1/10W	(EXCEPT 570EE,720EE)
R853	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(EXCEPT 570EE,720EE)
R856	1-216-097-91	METAL GLAZE 100K 5% 1/10W	(EXCEPT 570EE,720EE)
R857	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	(EXCEPT 570EE,720EE)
R858	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	(EXCEPT 570EE,720EE)
R859	1-216-123-11	METAL CHIP 1.2M 5% 1/10W	(EXCEPT 570EE,720EE)
R860	1-216-123-11	METAL CHIP 1.2M 5% 1/10W	(EXCEPT 570EE,720EE)
R861	1-216-117-00	METAL CHIP 680K 5% 1/10W	(EXCEPT 570EE,720EE)
R862	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(EXCEPT 570EE,720EE)
R930	1-216-073-00	METAL CHIP 10K 5% 1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R931	1-216-097-91	METAL GLAZE 100K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R932	1-216-097-91	METAL GLAZE 100K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R933	1-216-073-00	METAL CHIP 10K 5% 1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R934	1-216-073-00	METAL CHIP 10K 5% 1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R936	1-216-025-91	METAL GLAZE 100 5% 1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R938	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R939	1-216-022-00	METAL CHIP 75 5% 1/10W	(EXCEPT 325,475,570EE,720EE,720EG)
R940	1-216-049-91	METAL GLAZE 1K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R941	1-216-022-00	METAL CHIP 75 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R943	1-216-085-00	METAL CHIP 33K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R944	1-216-089-91	METAL GLAZE 47K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R945	1-216-041-00	METAL CHIP 470 5% 1/10W	(EXCEPT 325,475,570EE,720EE,720EG)
R946	1-216-041-00	METAL CHIP 470 5% 1/10W	(EXCEPT 325,475,570EE,720EE,720EG)
R947	1-216-041-00	METAL CHIP 470 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R948	1-216-041-00	METAL CHIP 470 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R949	1-216-073-00	METAL CHIP 10K 5% 1/10W	(715B,717VC,720B,720BZ,720NP,720VC)
R950	1-216-073-00	METAL CHIP 10K 5% 1/10W	(570EG,715B,717VC,720B,720BZ,720NP,720VC)
R951	1-216-295-91	CONDUCTOR, CHIP(2012)	(EXCEPT 325,475,570EE,720EE,720EG)

Ref. No.	Part No.	Description	Remarks
		< MODULATOR >	
RFU700	1-475-058-11	MODULATOR, RF(RFU-2110)	(715B,720B,720BZ)
RFU700	1-475-059-11	MODULATOR, RF(RFU-2101)	(717VC,720EG,720EX,720NC,720NP,720UX,720VC,720VP,725NC)
		< SWITCH >	
S100	1-570-953-11	SWITCH, PUSH (1 KEY)	(CASSETTE IN/REC PROOF)
S160	1-571-588-11	SWITCH, SLIDE(NTSC PB)	
S700	1-571-588-11	SWITCH, SLIDE(RF MODULATOR ON/OFF)	
		< TUNER >	
TU701	1-693-359-11	TUNER, MODULATOR IF (570EE,720EE)	
TU701	1-693-360-11	TUNER, MODULATOR IF (325,475,570EG)	
TU703	1-693-361-11	TUNER, IF(BTF-3WC425)(720EG)	
TU703	1-693-362-11	TUNER, IF(BTF-3WC443)(720BZ)	
TU703	1-693-364-11	TUNER, IF(BTF-3WC444)(715B,720B)	
TU703	1-693-365-11	TUNER, IF(BTF-3WC433)(720EX)	
TU703	1-693-366-11	TUNER, IF(BTF-3WU602)(720UX)	
TU703	1-693-367-11	TUNER, IF(BTF-3WC412)(720NC,720NP,725NC)	
TU703	1-693-368-11	TUNER, IF(BTF-3WC402)(717VC,720VC,720VP)	
		< VIBRATOR >	
X160	1-760-494-11	VIBRATOR, CRYSTAL 16MHz	
X201	1-579-608-11	VIBRATOR, CRYSTAL 4.43MHz	
X500	1-577-289-11	VIBRATOR, CRYSTAL 17.734475MHz	

Ref. No.	Part No.	Description	Remarks
*	A-6791-186-A	PS-385 BOARD, COMPLETE **********************	(Ref.No.: 5,000 Series)
	3-970-608-21	SUMITITE (B3), +BV	
		< CAPACITOR >	
⚠C600	1-117-617-11	FILM 0.22uF 20% 275V	
⚠C601	1-117-616-11	FILM 0.1uF 20% 275V	
⚠C602	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C603	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C604	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C605	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C606	1-113-915-11	CERAMIC 0.001uF 20% 250V	
C607	1-117-615-11	ELECT 68uF 20% 400V	
C608	1-126-963-11	ELECT 4.7uF 20% 50V	
C609	1-130-491-00	MYLAR 0.047uF 5% 50V	
C612	1-130-491-00	MYLAR 0.047uF 5% 50V	
C613	1-115-741-11	ELECT 0.0022F 20% 10V	
C615	1-111-042-11	ELECT 0.0012F 20% 16V	
C616	1-136-165-00	MYLAR 0.1uF 10% 50V	
C617	1-126-935-11	ELECT 470uF 20% 16V	
C618	1-126-926-11	ELECT 1000uF 20% 10V	
C619	1-126-934-11	ELECT 220uF 20% 16V	
C621	1-126-967-11	ELECT 47uF 20% 16V	
C624	1-126-934-11	ELECT 220uF 20% 16V	
C625	1-128-551-11	ELECT 22uF 20% 25V	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
C626	1-126-933-11	ELECT	100uF	20%	16V
C627	1-126-967-11	ELECT	47uF	20%	50V
C628	1-128-551-11	ELECT	22uF	20%	25V
C629	1-126-924-11	ELECT	330uF	20%	10V
C630	1-126-924-11	ELECT	330uF	20%	10V
C633	1-111-084-11	ELECT	220uF	20%	35V
C634	1-126-949-11	ELECT	220uF	20%	35V
C636	1-126-968-11	ELECT	100uF	20%	50V
C637	1-162-134-11	CERAMIC	470PF	10%	2KV
		< CONNECTOR >			
CN600	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN601	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P			
		< DIODE >			
D600	8-719-051-93	DIODE	DF06M-6031		
D602	8-719-975-89	DIODE	ERA15-02TP3		
D603	8-719-981-97	DIODE	MTZJ-3.0A		
D604	8-719-991-33	DIODE	1SS133T-77		
D605	8-719-043-76	DIODE	AK04V0		
D606	1-809-649-11	DIODE	RK44LF-L1		
D607	8-719-313-17	DIODE	AU02A-V0		
D608	8-719-510-73	DIODE	S3L20UF4		
D609	8-719-313-17	DIODE	AU02A-V0		
D610	8-719-059-64	DIODE	RD16F-T8B2		
D612	8-719-911-19	DIODE	1SS119		
D613	8-719-109-85	DIODE	RD5.1ES-B2		
D614	8-719-911-19	DIODE	1SS119		
		< TERMINAL BOARD >			
ET600	1-537-770-21	TERMINAL BOARD, GROUND			
		< FUSE >			
⚠F600	1-533-827-11	FUSE (HOLDER TO) T2A 250V			
		< IC >			
IC601	8-759-438-18	IC	PQ12RD08		
IC602	8-759-035-35	IC	TL431CLPRA		
		< JUMPER RESISTOR >			
JS612	1-216-295-91	CONDUCTOR, CHIP (2012)			
		< COIL >			
L600	1-403-588-11	CIL, CHOKE	22uH		
L601	1-403-588-11	CIL, CHOKE	22uH		
L602	1-408-397-00	INDUCTOR	1uH		
L603	1-408-397-00	INDUCTOR	1uH		
L604	1-414-792-11	INDUCTOR	0uH		
		< LINE FILTER >			
LF600	1-424-485-11	FILTER, LINE			
LF601	1-409-977-11	FILTER, LINE			
LF602	1-409-977-11	FILTER, LINE			
		< PHOTOCOUPLER >			
⚠PH600	8-749-013-04	PHOTOCOUPLER MOC8104TV			

Ref. No.	Part No.	Description			Remarks	
		< IC LINK >				
⚠PS600	1-532-841-21	LINK, IC 1.6A				
⚠PS601	1-532-841-21	LINK, IC 1.6A				
⚠PS602	1-533-593-11	LINK, IC 2A				
⚠PS603	1-532-841-21	LINK, IC 1.6A				
		< TRANSISTOR >				
Q600	8-729-024-00	TRANSISTOR	2SC3377-T93Q			
Q601	8-729-032-85	TRANSISTOR	2SC4231LM			
Q602	8-729-140-93	TRANSISTOR	2SB733-34			
Q603	8-729-421-22	TRANSISTOR	UN2211			
Q604	8-729-018-99	TRANSISTOR	2SD2394-F			
Q605	8-729-119-77	TRANSISTOR	2SA1175-FEK			
Q607	8-729-140-96	TRANSISTOR	KSC1008			
Q608	8-729-901-06	TRANSISTOR	DTA144EK			
Q610	8-729-140-96	TRANSISTOR	KSC1008			
Q611	8-729-901-06	TRANSISTOR	DTA144EK			
Q612	8-729-421-19	TRANSISTOR	UN2213			
Q613	8-729-119-79	TRANSISTOR	2SC2785-FEK			
Q614	8-729-119-77	TRANSISTOR	2SA1175-FEK			
		< RESISTOR >				
⚠R600	1-214-947-00	METAL	2.7M	1%	1/2W	
R601	1-247-887-00	CARBON	220K	5%	1/4W	
R602	1-247-887-00	CARBON	220K	5%	1/4W	
R603	1-249-429-11	CARBON	10K	5%	1/4W	
R604	1-215-885-00	METAL OXIDE	68	5%	2W	F
R606	1-215-416-00	METAL	620	1%	1/6W	
R607	1-247-807-31	CARBON	100	5%	1/4W	
R608	1-249-404-00	CARBON	82	5%	1/4W	F
R609	1-215-428-00	METAL	2K	1%	1/6W	
R610	1-249-406-11	CARBON	120	5%	1/4W	F
R611	1-215-425-00	METAL	1.5K	1%	1/6W	
R612	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R613	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R614	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R615	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R616	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R617	1-249-417-11	CARBON	1K	5%	1/4W	F
R618	1-247-815-91	CARBON	220	5%	1/4W	
R620	1-249-417-11	CARBON	1K	5%	1/4W	F
R621	1-216-363-00	METAL OXIDE	0.33	5%	2W	F
R622	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R623	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R624	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R625	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R626	1-247-815-91	CARBON	220	5%	1/4W	
R627	1-249-421-11	CARBON	2.2K	5%	1/4W	F
		< TRANSFORMER >				
T600	1-431-167-11	TRANSFORMER, RCC CONVERTER				

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
*	A-6791-187-A	RP-217 BOARD, COMPLETE			(715B,717VC,720,725)
		**********************			
*	A-6791-201-A	RP-217 BOARD, COMPLETE(570)			
		**********************			
*	A-6791-212-A	RP-217 BOARD, COMPLETE(325)			
		**********************			
*	A-6791-215-A	RP-217 BOARD, COMPLETE(475)			
		**********************			
					(Ref.No.: 1,000 Series)
		< CAPACITOR >			
C140	1-126-960-11	ELECT	1uF	20%	50V
C141	1-163-263-11	CERAMIC CHIP	330PF	5%	50V (570,715B,717VC,720,725)
C141	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V (325,475)
C142	1-126-960-11	ELECT	1uF	20%	50V
C143	1-126-967-11	ELECT	47uF	20%	16V
C144	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C145	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C146	1-126-933-11	ELECT	100uF	20%	16V
C147	1-126-960-11	ELECT	1uF	20%	50V
C260	1-163-231-11	CERAMIC CHIP	15PF	5%	50V (EXCEPT 325)
C260	1-163-235-11	CERAMIC CHIP	22PF	5%	50V (325)
C261	1-163-231-11	CERAMIC CHIP	15PF	5%	50V (EXCEPT 325)
C264	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C265	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (EXCEPT 325)
C266	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C267	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C268	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (325)
C268	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (EXCEPT 325)
C269	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (325)
C269	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (EXCEPT 325)
C270	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C271	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C272	1-163-031-11	CERAMIC CHIP	0.01uF	50V	(325)
C272	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (EXCEPT 325)
C273	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V(325)
C273	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (EXCEPT 325)
C274	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (EXCEPT 325)
C275	1-164-346-11	CERAMIC CHIP	1uF		16V
C276	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C277	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C278	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (EXCEPT 325)
C279	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (EXCEPT 325)
C280	1-124-584-00	ELECT	100uF	20%	10V
C282	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C283	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C284	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C286	1-124-584-00	ELECT	100uF	20%	10V
C287	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C288	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C289	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C290	1-164-346-11	CERAMIC CHIP	1uF		16V
C321	1-126-967-11	ELECT	47uF	20%	16V
C322	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C323	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C324	1-104-697-11	FILM	0.047uF	5%	100V (EXCEPT 570)
C324	1-137-462-11	FILM	0.018uF	5%	100V (570)
C331	1-126-933-11	ELECT	100uF	20%	16V (570)
C332	1-164-232-11	CERAMIC CHIP	0.01uF	50V	(570)
C334	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V (570)
C335	1-104-697-11	FILM	0.047uF		100V (570)
C341	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C342	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C343	1-124-257-00	ELECT	2.2uF	20%	50V (715B,717VC,720,725)
C344	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C345	1-126-160-11	ELECT	1uF	20%	50V (715B,717VC,720,725)
C346	1-124-584-00	ELECT	100uF	20%	10V (715B,717VC,720,725)
C347	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C350	1-163-038-91	CERAMIC CHIP	0.1uF		25V (715B,717VC,720,725)
C351	1-163-139-00	CERAMIC CHIP	820PF	5%	50V (715B,717VC,720,725)
C352	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C353	1-163-038-91	CERAMIC CHIP	0.1uF		25V (715B,717VC,720,725)
C356	1-163-139-00	CERAMIC CHIP	820PF	5%	50V (715B,717VC,720,725)
C357	1-163-031-11	CERAMIC CHIP	0.01uF		50V (715B,717VC,720,725)
C358	1-163-038-91	CERAMIC CHIP	0.1uF		25V (715B,717VC,720,725)
		< CONNECTOR >			
CN260	1-563-585-11	CONNECTOR, FLEXIBLE 8P			(325,475,570)
CN260	1-766-986-11	CONNECTOR, FFC/FPC 13P			(715B,717VC,720,725)
* CN261	1-564-030-00	PIN, CONNECTOR 5P			
CN271	1-573-834-11	CONNECTOR, BOARD TO BOARD 20P			
CN272	1-766-720-11	CONNECTOR, BOARD TO BOARD 17P			
CN301	1-506-481-11	PIN, CONNECTOR 2P			
CN302	1-506-485-11	PIN, CONNECTOR 6P			
* CN341	1-564-027-00	PIN, CONNECTOR 2P			(715B,717VC,720,725)

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC140	8-759-438-83	IC BA6305F	
IC141	8-759-510-73	IC BA10393F-E2	
IC260	8-759-352-17	IC HA118195NT	(EXCEPT 325)
IC260	8-759-357-84	IC HA118295NT	(325)
IC301	8-759-089-84	IC BA7755AF-T1	
IC340	8-759-055-49	IC AN3327K	(715B,717VC,720,725)
		< JUMPER RESISTOR >	
JR501	1-216-296-91	CONDUCTOR, CHIP(3216)	
JR502	1-216-295-91	CONDUCTOR, CHIP(2012)	
		< JUMPER RESISTOR >	
JS331	1-216-295-91	CONDUCTOR, CHIP(2012)	(325,475,715B,717VC,720,725)
		< COIL >	
L140	1-408-982-11	INDUCTOR 100uH	
L262	1-408-970-21	INDUCTOR 10uH	
L263	1-408-982-11	INDUCTOR 100uH	
L321	1-408-982-11	INDUCTOR 100uH	
L331	1-410-687-11	INDUCTOR 1.2mH	(570)
L341	1-408-982-11	INDUCTOR 100uH	(715B,717VC,720,725)
		< IC LINK >	
⚠PS331	1-533-586-31	LINK, IC 0.315A	(570)
		< TRANSISTOR >	
Q141	8-729-901-06	TRANSISTOR DTA144EK	
Q260	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q321	8-729-802-91	TRANSISTOR 2SD879	
Q331	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	(570)
Q332	8-729-900-51	TRANSISTOR DTA114TK	(570)
		< RESISTOR >	
R140	1-216-117-00	METAL CHIP 680K 5%	1/10W
R141	1-216-037-00	METAL CHIP 330 5%	1/10W
R142	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R143	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R144	1-216-043-91	METAL GLAZE 560 5%	1/10W
R145	1-216-105-91	METAL GLAZE 220K 5%	1/10W
R147	1-208-830-11	METAL GLAZE 100K 0.50%	1/10W
R148	1-208-830-11	METAL GLAZE 100K 0.50%	1/10W
R149	1-208-830-11	METAL GLAZE 100K 0.50%	1/10W
R150	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R151	1-208-830-11	METAL GLAZE 100K 0.50%	1/10W
R152	1-216-111-91	METAL GLAZE 390K 5%	1/10W
R153	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R155	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R157	1-216-081-00	METAL CHIP 22K 5%	1/10W
R260	1-216-041-00	METAL CHIP 470 5%	1/10W (EXCEPT 325)
R260	1-216-045-00	METAL CHIP 680 5%	1/10W (325)
R261	1-216-041-00	METAL CHIP 470 5%	1/10W (EXCEPT 325)
R262	1-216-295-91	CONDUCTOR, CHIP(2012)	
R263	1-216-295-91	CONDUCTOR, CHIP(2012)	
R264	1-216-295-91	CONDUCTOR, CHIP(2012)	
R265	1-216-295-91	CONDUCTOR, CHIP(2012)	(EXCEPT 325)
R266	1-216-053-00	METAL CHIP 1.5K 5%	1/10W (325)
R266	1-216-055-00	METAL CHIP 1.8K 5%	1/10W (EXCEPT 325)
R267	1-216-071-00	METAL CHIP 8.2K 5%	1/10W (EXCEPT 325)
R267	1-216-073-00	METAL CHIP 10K 5%	1/10W (325)
R268	1-216-081-00	METAL CHIP 22K 5%	1/10W
R269	1-216-059-00	METAL CHIP 2.7K 5%	1/10W (EXCEPT 325)
R269	1-216-061-00	METAL CHIP 3.3K 5%	1/10W (325)
R270	1-216-081-00	METAL CHIP 22K 5%	1/10W
R271	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R272	1-216-081-00	METAL CHIP 22K 5%	1/10W
R273	1-216-081-00	METAL CHIP 22K 5%	1/10W
R274	1-216-075-00	METAL CHIP 12K 5%	1/10W
R275	1-216-075-00	METAL CHIP 12K 5%	1/10W
R276	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R278	1-216-025-91	METAL GLAZE 100 5%	1/10W (325)
R317	1-216-079-00	METAL CHIP 18K 5%	1/10W
R321	1-249-401-11	CARBON 47 5%	1/4W F
R322	1-216-059-00	METAL CHIP 2.7K 5%	1/10W (EXCEPT 325,570)
R322	1-216-063-91	METAL GLAZE 3.9K 5%	1/10W (325)
R322	1-216-067-00	METAL CHIP 5.6K 5%	1/10W (570)
R323	1-217-671-11	METAL CHIP 1 5%	1/10W
R324	1-249-408-11	CARBON 180 5%	1/4W F
R331	1-216-295-91	CONDUCTOR, CHIP(2012)	(570)
R332	1-216-083-00	METAL CHIP 27K 5%	1/10W (570)
R333	1-249-394-11	CARBON 12 5%	1/4W F (570)
R335	1-126-735-11	ELECT 10MF 20%	100V (570)
R341	1-216-067-00	METAL CHIP 5.6K 5%	1/10W (715B,717VC,720,725)
R342	1-216-051-00	METAL CHIP 1.2K 5%	1/10W (715B,717VC,720,725)
R343	1-216-073-00	METAL CHIP 10K 5%	1/10W (715B,717VC,720,725)
R344	1-216-079-00	METAL CHIP 18K 5%	1/10W (715B,717VC,720,725)
R345	1-216-097-91	METAL GLAZE 100K 5%	1/10W (715B,717VC,720,725)
R346	1-216-065-00	METAL CHIP 4.7K 5%	1/10W (715B,717VC,720,725)
R347	1-216-065-00	METAL CHIP 4.7K 5%	1/10W (715B,717VC,720,725)
R348	1-216-097-91	METAL GLAZE 100K 5%	1/10W (715B,717VC,720,725)
R350	1-216-033-00	METAL CHIP 220 5%	1/10W (715B,717VC,720,725)
R351	1-216-035-00	METAL CHIP 270 5%	1/10W (715B,717VC,720,725)
R356	1-216-035-00	METAL CHIP 270 5%	1/10W (715B,717VC,720,725)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		< TRANSFORMER >	
T321	1-431-097-11	TRANSFORMER, BIAS OSCILLATION	(EXCEPT 570)
T321	1-431-100-11	TRANSFORMER, BIAS OSCILLATION	(570)
T331	1-423-415-11	TRANSFORMER, BIAS OSCILLATION	(570)

MISCELLANEOUS

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Ref. No.	Part No.	Description	Remarks
11	1-762-844-21	SWITCH, ROTARY (570)	
⚠15	1-782-012-11	CORD, POWER	
17	1-777-960-11	CABLE, FLAT (FFM-13) 29P	
158	1-500-144-11	HEAD, FE	
164	A-6736-105-A	ACE BLOCK ASSY	
165	1-506-485-11	PIN, CONNECTOR 6P	
203	1-759-183-11	DRUM ASSY, DZH-78A-R(M901) (325)	
203	1-759-371-11	DRUM ASSY, DZH-65A-R(M901) (475,570)	
203	1-759-373-11	DRUM ASSY, DZH-86A-R(M901)	(715B,717VC,720,725)
260	1-762-076-11	SWITCH, ROTARY	
M902	1-698-409-14	MOTOR, DC(CAPSTAN)	
M903	X-3943-883-1	MOTOR ASSY, CAM	

ACCESSORIES & PACKING MATERIALS

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Ref. No.	Part No.	Description	Remarks
	1-696-593-11	CORD, CONNECTION (PAL)(FOR RF)1.5m	
	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P	(720EX,720UX)
	1-770-321-11	ADAPTOR, CONVERSION 6P (720EE)	
	1-770-321-21	ADAPTOR, CONVERSION 4P (570EE)	
	3-858-881-11	MANUAL, INSTRUCTION (ENGLISH)	(720EX,720UX)
	3-858-881-21	MANUAL, INSTRUCTION (FRENCH)	(720NC,720VP,725NC)
	3-858-881-31	MANUAL, INSTRUCTION (GERMAN)	(717VC,720NC,720VC,720VP,725NC)
	3-858-881-41	MANUAL, INSTRUCTION (FRENCH)	(720B,720BZ)
	3-858-881-51	MANUAL, INSTRUCTION (DUTCH)	(720NC,720VP,725NC)
	3-858-881-61	MANUAL, INSTRUCTION (ITALIAN)(720VP)	
	3-858-881-71	MANUAL, INSTRUCTION (SPANISH)(720NP)	
	3-858-881-81	MANUAL, INSTRUCTION (PORTUGUESE)	(720NP)
	3-858-882-11	MANUAL, INSTRUCTION (SWEDISH)	(720NC,725NC)
	3-858-882-21	MANUAL, INSTRUCTION (FINISH)	(720NC,725NC)
	3-858-882-31	MANUAL, INSTRUCTION (DANISH)	(720NC,725NC)
	3-858-883-11	MANUAL, INSTRUCTION (ENGLISH)(720EG)	
	3-858-883-21	MANUAL, INSTRUCTION (CZECH)(720EG)	
	3-858-883-31	MANUAL, INSTRUCTION (POLISH)(720EG)	
	3-858-883-41	MANUAL, INSTRUCTION (HUNGARIAN)(720EG)	
	3-858-883-51	MANUAL, INSTRUCTION (ENGLISH)(720EE)	
	3-858-883-61	MANUAL, INSTRUCTION (RUSSIAN)(720EE)	
	3-858-884-11	MANUAL, INSTRUCTION (ENGLISH)(570EG)	
	3-858-884-21	MANUAL, INSTRUCTION (CZECH)(570EG)	
	3-858-884-31	MANUAL, INSTRUCTION (POLISH)(570EG)	
	3-858-884-41	MANUAL, INSTRUCTION (HUNGARIAN)(570EG)	
	3-858-884-51	MANUAL, INSTRUCTION (ENGLISH)(570EE)	
	3-858-884-61	MANUAL, INSTRUCTION (RUSSIAN)(570EE)	
	3-858-885-11	MANUAL, INSTRUCTION (CZECH)(475)	
	3-858-885-21	MANUAL, INSTRUCTION (ENGLISH)(325)	
	3-858-885-31	MANUAL, INSTRUCTION (CZECH)(325)	
	3-858-885-41	MANUAL, INSTRUCTION (POLISH)(325)	
	3-858-885-51	MANUAL, INSTRUCTION (HUNGARIAN)(325)	
	3-859-420-21	MANUAL, INSTRUCTION (FRENCH)(715B)	
*	3-972-892-01	INDIVIDUAL CARTON	(720NC,720NP,720VC,720VP)
*	3-972-892-11	INDIVIDUAL CARTON(720B,720BZ)	
*	3-972-892-21	INDIVIDUAL CARTON(720EX,720UX)	
*	3-972-892-31	INDIVIDUAL CARTON(717VC)	
*	3-972-892-41	INDIVIDUAL CARTON(725NC)	
*	3-972-892-51	INDIVIDUAL CARTON(715B)	
*	3-972-893-01	CUSHION	
*	3-974-278-01	INDIVIDUAL CARTON(720EG)	
*	3-974-278-11	INDIVIDUAL CARTON(720EE)	
*	3-974-278-21	INDIVIDUAL CARTON(570EG)	
*	3-974-278-31	INDIVIDUAL CARTON(570EE)	
*	3-974-278-41	INDIVIDUAL CARTON(475)	
*	3-974-278-51	INDIVIDUAL CARTON(325)	
*	3-974-583-01	SPACER	

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HARDWARE LIST

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Ref. No.	Part No.	Description	Remarks
#1	7-682-547-04	SCREW +P 3X6	
#2	7-685-646-79	SCREW (3X8)	
#5	7-624-190-61	STOP RING 2.4,TYPE-CS	
#6	7-628-254-10	SCREW +PS 2.6X6	
#7	7-624-106-04	STOP RING 3.0,TYPE-E	
#8	7-682-645-01	SCREW +PS 3X4	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 6
INTERFACE, IC PIN FUNCTION DESCRIPTION

6-1. SYSTEM CONTROL — SERVO PERIPHERAL CIRCUIT INTERFACE (MA-286 BOARD IC160)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTHREADING	PB	PB PAUSE	SLOW	CUE	x 2	REVIEW	REC	REC PAUSE	PB INDEX WRITING
REC CTL	MA-286 IC160 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
CAP STOP	MA-286 IC160 ㉟	O (O.D)	L	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	L	*3	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	Hi-Z (O.D)	
STEP PLS	MA-286 IC160 (99)	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	MA-286 IC160 (75)	O	L	L	L	L	L	L	L	L	L	L	L	H	L	H
CTL INDEX	MA-286 IC160 ㊳	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
$\overline{\text{PB CTL}}$	MA-286 IC160 (67)	I	H	*8	*8			*1	H/L	*2	*5	*6	*6	*1	H	
DRM PG	MA-286 IC160 (68)	I	*1	*1	*1	*5	*5	*1	*1	*1	*1	*1	*1	*1	*1	
DRM FG	MA-286 IC160 (69)	I	*1	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
CAP FG	MA-286 IC160 (70)	I	H/L	*6	*6	*5	*5	*8	H/L	*2	*6	*6	*6	*6	H/L	
CAP DA	MA-286 IC160 (73)	O	*8	*8	*8	*8	*8	*9	*8	*8	*9	*9	*9	*9	*8	
DRM DA	MA-286 IC160 (74)	O	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	
CTL STEP	MA-286 IC160 (76)	O	L	L	L	L	L	L	L	*11	L	L	L	L	L	
CTL GAIN	MA-286 IC160 (92)	O	H	H	H	H	H	H	*12	*12	H	H	H	H	L	L
CTL RESET	MA-286 IC160 ⑧	I/O	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	*13	Hi-Z	Hi-Z	Hi-Z
REC COUNT	MA-286 IC160 (77)	I	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z

*1. 25Hz pulse.
*2. Pulse at tape running.
*3. Reverse logic pulse of STEP PLS.
*4. "L" when drum rotation stop.
*5. Unstable period pulse.
*6. Pulse of period in proportion to tape speed.
*7. 300Hz pulse.
*8. Approx. 2 msec period "H" or "L" pulse.
*9. Approx. 1.5 msec period "H" or "L" pulse.
*10. Approx. 3 msec period "H" or "L" pulse.
*11. "H" when FWD directions STEP drive.

6-2. SYSTEM CONTROL — MECHANISM INTERFACE (MA-286 BOARD IC160)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREADING	TAPE UNTHREADING	STOP	FF	REW	PB	PB PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC PAUSE
CAM2 CW	MA-286 IC160 ⑨	I/O	Hi-Z	H	L	H	L	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z
CAM1 V	MA-286 IC160 ⑩	I/O	Hi-Z	H	H	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z
MODE 1	MA-286 IC160 ㉒	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE 2	MA-286 IC160 ㉑	I	L	L	L	*1	*1	L	L	L	H	H	H	H	H	H	H	H
MODE 3	MA-286 IC160 ⑳	I	L	L	L	*1	*1	H	H	H	L	H	H	L	L	H	L	H
MODE 4	MA-286 IC160 ⑲	I	L	H	H	*1	*1	H	L	L	L	L	L	L	L	L	L	L
REC PRF	MA-286 IC160 ⑮	I	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
T REEL FG	MA-286 IC160 (64)	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL FG	MA-286 IC160 (63)	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
T/E LED	MA-286 IC160 ㉜	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP PWM	MA-286 IC160 (84)	O (O.D)	*8	*8	*8	*8	*8	*8	*9	*9	*8	*10	*11	*8	*9	*9	*8	*10
$\overline{\text{CAP STOP}}$	MA-286 IC160 ㉟	O (O.D)	L	L	L	H	H	L	H	H	H	L	*5	H	H	H	H	L
CAP RVS	MA-286 IC160 (72)	O	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
CAP DA	MA-286 IC160 (73)	O																
T SENS	MA-286 IC160 (61)	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	MA-286 IC160 (62)	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. Uncertainly.
*2. "L" when erasing protection tab is bent. "H" when not bent.
*3. Pause of period in proportion to real rotating speed.
*4. Approx. 2 msec period "H" pulse.
*5. Pulse at tape running.
*6. "L" when tape running and CAP RVS is "H".
*7. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.
*8. Captra Normal Duty pulse becomes 1.6V by LPF.
*9. Captra FR Duty pulse becomes 3.189V by LPF.
*10. Captra Denji Duty pulse becomes 0.31V by LPF.
*11. Captra Mid Duty pulse becomes 1.426V by LPF.
Captra Low Duty pulse becomes 0.684V by LPF.

6-3. SYSTEM CONTROL — SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-286 BOARD IC160)

Signal	Pin No.	I/O	I/O Level
$\overline{\text{ASURA RESET}}$	MA-286 IC160 ㊵	I	Normally "H", "L" when service interruption is detected or restored.
$\overline{\text{ASURA CS}}$	MA-286 IC160 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
S IN 0	MA-286 IC160 ㊺	I	Serial communication data from timer microprocessor. V period " L" pulse.
S OUT 0	MA-286 IC160 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
S CLK	MA-286 IC160 ㊼	I	Serial communication clock from timer microprocessor. V period "L" pulse.

6-4. SYSTEM CONTROL — Hi-Fi AUDIO BLOCK INTERFACE (MA-286 BOARD IC160)

Signal	Pin No.	I/O	TOP/FF/REW	TAPE LOADING	TAPE UNLOADING	PB	PB PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC PAUSE
AF ENV	MA-286 IC160 (59)	I	AF RF envelope signal input terminal for automatic tracking.										
A MUTEN	MA-286 IC160 ㉛	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
AF REC $\overline{\text{P}}$	MA-286 IC160 ②	O	L	L	L	L	L	L	L	L	L	H	L
AF SWP	MA-286 IC160 (100)	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
FULL ERS	MA-286 IC160 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 25 Hz 50 % duty pulse approx. 5 msec delayed from RF SW P.

6-5. SERVO/SYSTEM CONTROL MICROPROCESSOR PIN FUNCTIONS (MA-286 BOARD IC160)

Pin No.	Pin Name	I/O	Function
1	RF SWP	O	RF switching pulse output.
2	AF REC P	O	"H" when HiFi audio REC.
3		—	Not used.
4	QVD	O	Quasi VD pulse output.
5	AUTO PRESET	O	"H" during auto preset.
6	FE ON	O	Not used.
7	REC CTL	O	REC CTL signal output.
8	CTL RESET	O	Capstan current control. "H" during slow mode.
9	CAM 2	O	Cam motor control.
10	CAM 1	O	Cam motor 9V, 12V switch.
11	TA MUTE	O	Tuner audio mute. H: Mute
12	SECAM DET	I	"H" when the SECAM signal is detected.
13	NT JUDGE	I	4.43/3.58 judge input.
14	MESECAM	I	"H" when the MESECAM signal is detected.
15	CIN (REC PRF)	I	Erasing protection tab, cassette in detection signal input.
16	AV CONT	O	On/Off control.
17	N. C.	—	Not used.
18	SW1	O	
19	MODE 4	I	Cam encoder signal input.
20	MODE 3	I	Cam encoder signal input.
21	MODE 2	I	Cam encoder signal input.
22	MODE 1	I	Cam encoder signal input.
23	N. C.	—	Not used.
24	PAL PLUS CONT	O	
25	N. C.	—	Not used.
26	N. C.	—	Not used.
27	N. C.	—	Not used.
28	SDA 0	I/O	IIC data.
29	N. C.	—	Not used.
30	SCL 0	I/O	IIC clock.
31	A MUTE	O	"H" when audio mute.
32	T/E LED	O	Tape top/end sensors driver .
33	N. C.	—	Not used.
34	N. C.	—	Not used.
35	CAP STOP	O	Capstan stop signal output.
36	FULL ERS	O	Full erase control.
37	N. C.	O	Not used.
38	N. C.	O	Not used.
39	MP	I	Fixed to "L".
40	ASURA RESET	I	System reset signal.
41	VSS	—	Ground.
42	XTAL	—	System clock 16MHz.
43	EXTAL	—	System clock 16MHz.
44	ASURA CS	I	Servo/system control microcomputer chip select signal.
45	S IN 0	I	Serial communication signal.
46	S OUT 0	O	Serial communication signal.
47	SCLK	O	Serial communication signal.
48	N. C.	—	Not used.
49	N. C.	—	Not used.
50	N. C.	—	Not used.
51	SW2	O	Tuner select switch.
52	AVSS	—	Unswitched ground.
53	AVREF	—	AD port reference input UNSW 5V.
54	AVDD	—	UNSW 5V.
55	NTPB SW	I	NTSC playback switch.
56	AV ADJ	I	Adjustment mode.
57	N. C.	—	Not used.
58	N. C.	—	Not used.
59	AF ENV	I	HiFi audio playback signal envelope.
60	RF ENV	I	Video playback signal envelope.
61	T SENS	I	Take-up end sensor.
62	S SENS	I	Supply end sensor.
63	S REEL FG	I	Supply reel FG input.
64	T REEL FG	I	Take-up reel FG input.
65		—	Not used.
66	VSYNC	I	Composite sync. signal input.
67	PB CTL	I	Playback CTL input.
68	DRM PG	I	Drum PG input.
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71		—	Not used.
72	CAP RVS	O	Capstan reverse control "H" when reverse.
73	CAP DA	O	Capstan error D/A output.
74	DRM DA	O	Drum PG input.
75	CTL REC	O	"H" : CTL is recorded.
76	CTL STEP	O	CTL amp, STEP operation control.
77	REC COUNT	I	Counter signal input when recording.
78	N. C.	—	Not used.
79	N. C.	—	Not used.
80	DATA (SSB)	I/O	Serial communication data.
81	CLOCK (SSB)	I/O	Serial communication clock.
82	N.C.	—	Not used.
83	N. C.	—	Not used.
84	CAP TRQ PWM	O	PWM output for capstan torque control.
85	N. C.	I	Not used.
86	N. C.	—	Not used.
87	N. C.	—	Not used.
88	VSS	—	Ground.
89	VDD	—	5V.
90	5V	—	5V.
91	N. C.	—	Not used.
92	CTL GAIN	O	CTL amp gain control.
93	SP	O	Normal audio tape speed select.
94	N. C.	—	Not used.
95	N. C.	—	Not used.
96	REC	O	"H" output when recording.
97	N. C.	—	Not used.
98	N. C.	—	Not used.
99	STEP PLS	O	Step pulse "H" when capstan stops.
100	AF SWP	O	AF switching pulse output.

6-6. TUNER/TIMER MODE CONTROL PIN FUNCTION
(FR-119 BOARD IC470)

Pin No.	Pin Name	I/O	Function
1	$\overline{\text{PDC DAV}}$	I	Line 21H output pulse.
2	DMS1	I	DMS A/D input.
3	DMS2	I	DMS A/D input.
4	SIRCS IN	I	SIRCS signal input.
5	N.C.	—	Not used.
6	N.C.	—	Not used.
7	BUZZER	O	Buzzer output.
8	POWER SAVE	I	
9	LED CS	O	LED chip select. L : Active.
10	SCLK	O	Clock for serial communication.
11	SI	I	Serial data input.
12	SO	O	Serial data output.
13	H DET	O	
14	LANC IN	I	LANC input.
15	LANC OUT	O	LANC output.
16	A/D0	I	Key reading A/D input.
17	A/D1	I	Key reading A/D input.
18	A/D2	I	Key reading A/D input.
19	A/D3	I	Key reading A/D input.
20	A/D4	I	Key reading A/D input.
21	A/D5	I	Key reading A/D input.
22	A/D6	I	Key reading A/D input.
23	AFT	I	
24	AVDD	—	UNSWD 5V.
25	AV REF	—	A/D port reference input UNSW5V.
26	SCL	O	I2C bus (clock).
27	CG $\overline{\text{CS}}$	O	Character generator chip select signal.
28	SDA	O	I2C bus (data).
29	CME $\overline{\text{CS}}$	O	AV link microcomputer chip select.
30	AVSS	—	Unswitched ground.
31	EXTAL	—	System clock.
32	XTAL	—	System clock.
33	VSS	—	Ground.
34	$\overline{\text{RST}}$	I	Reset signal in.
35	PLL CLK	O	Tuner clock signal.
36	PLL DATA	O	Tuner data signal.
37	PLL ENABLE	O	Tuner enable signal.
38	N.C.	—	Not used.
39	C+ DET	I	Canal + detection.
40	N.C.	—	Not used.
41	N.C.	—	Not used.
42	POWER FAIL	O	Power failure detect sigal input.
43	VFDP	—	-30V
44	SEG16	O	LCD segment output.
45	SEG15		LCD segment output.
46	SEG14		LCD segment output.
47	SEG13		LCD segment output.
48	SEG12		LCD segment output.
49	SEG11		LCD segment output.
50	SEG10		LCD segment output.
51	SEG9		LCD segment output.
52	SEG8		LCD segment output.
53	SEG7		LCD segment output.
54	SEG6		LCD segment output.
55	SEG5		LCD segment output.
56	SEG4		LCD segment output.
57	SEG3		LCD segment output.
58	SEG2		LCD segment output.
59	SEG1		LCD segment output.
60	SEG19		LCD segment output.
61	SEG18		LCD segment output.
62	SEG17		LCD segment output.
63	N.C.	—	Not used.
64	N.C.	—	Not used.
65	N.C.	—	Not used.
66	GRID6	O	LCD grid signal.
67	GRID5		LCD grid signal.
68	GRID4		LCD grid signal.
69	GRID3		LCD grid signal.
70	GRID2		LCD grid signal.
71	GRID1		LCD grid signal.
72	TDD		UNSWD 5V.
73	TX	—	Connected to oscillator for clock.
74	TEX	—	Connected to oscillator for clock.
75	NC/VPP	—	Connected to +5V.
76	ASURA $\overline{\text{CS}}$	O	Servo/System control microcomputer chip select.
77	$\overline{\text{ASURA RESET}}$	O	System reset signal output.
78	POWER CONT 1	O	Power supply control signal output.
79	POWER CONT 2	O	Power supply control signal output to EDS.
80	CG V	I	Vertical sync. signal input.

SECTION 7
ADJUSTMENTS

7-1 MECHANICAL ADJUSTMENTS

For the mechanical adjustments, please refer to the "VHS MECHANICAL ADJUSTMENT MANUAL Ⅳ (H MECHANISM)" (9-973-623-11).

7-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 7-6 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
3) Frequency counter
4) Pattern generator
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Alignment tapes
    KRV-51P Part No. : 8-192-605-36

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

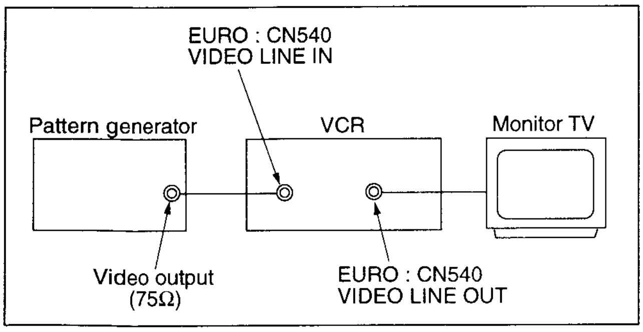


Fig. 7-2-1.

2-1-3. Input Signal Check

Video signal produced by a pattern generator is used as an adjustment signal to perform electrical alignment for this unit. This video signal must satisfy the specification.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

- CHANNEL switch .... LINE 1

Connect an oscilloscope to the Video Input terminal. Check that the synchronizing signal of the Y signal has an amplitude of approximately 0.7V and that the burst signal has an amplitude of approximately 0.3V and its waveform is flat. And check that the level ratio of burst signal to "red" signal is 0.30 : 0.66. The video signal (color bar) used for electrical aligning this unit is shown in Fig. 7-2-2.

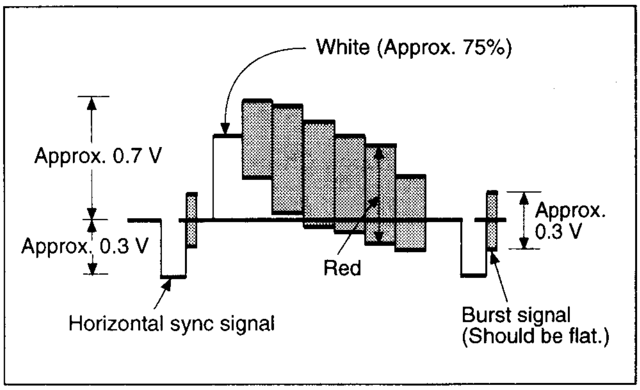


Fig. 7-2-2. Color Bar Signals of Pattern Generator

2-1-4. Alignment Tape

- Contents of KRV-51P

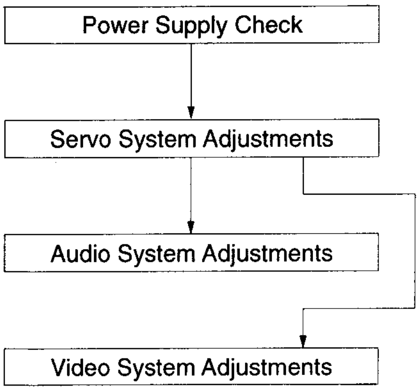
	Mode	Period	Video signal	Audio signal	
				Hi-Fi	Normal
1	SP	7 minutes	Color bar	400Hz (L/R)	400Hz
2		3 minutes	Monoscope		
3	LP	7 minutes	Color bar		
4		3 minutes	Monoscope		

2-1-5. Input/Output Levels and Impedance

Video input: LINE IN
EURO
Input signal: 1Vp-p, 75ohms, unbalanced, sync negative
Video output: LINE OUT
EURO
Output signal: 1Vp-p, 75ohms, unbalanced, sync negative
Audio input: LINE IN
EURO
Input level: –7.5 dBs
(0dBs= 0.775Vrms)
Input impedance: more than 47 kilohms
Audio output: LINE OUT
EURO
Standard level: –7.5dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms

2-1-6. Adjustment Sequence

The adjustments should be performed in the following sequence.


Power Supply Check
Servo System Adjustments
Audio System Adjustments
Video System Adjustments

2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (MA-286 Board)

Mode	E-E
Measuring Instrument	Digital voltmeter
SW 12V Check	
Measurement point	IC930 pin ②
Specified value	12.0 ± 0.3V
MTR12V Check	
Measurement point	CN600 Pin ⑫⑬
Specified value	12.4 ± 0.5V
SW5V Check	
Measurement point	CN600 Pin ⑰⑱
Specified value	5.0 ± 0.5V

[Check Method]

1) Each of these supply voltages must meet its specified value.

2-3. SERVO SYSTEM CHECK

Unless otherwise specified, set the switches to the following positions.

- CHANNEL switch .... LINE
- TAPE SPEED switch .... SP

2-3-1. RF Switching Position Adjustment (MA-286, RP-217 Boards)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs. To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: Video LINE OUT (EURO) CH2: CN261 pin ② (RF SWP)
Measuring instrument	Oscilloscope
Specified value	6.5 ± 0.5H (416 ± 32 μsec)

[Adjustment Method]

1) Short-circuit between CN261 pin ⑤ and pin ③ on RP-217 board for about 1 second to activate the RF switching position adjustment mode.
2) Check that "ADJ-RF" is indicated on FL display.
3) Using the channel + and – buttons, adjust to 416 ± 32μsec (6.5 ± 0.5H).
4) Press the PAUSE button.
5) Press the EJECT button.

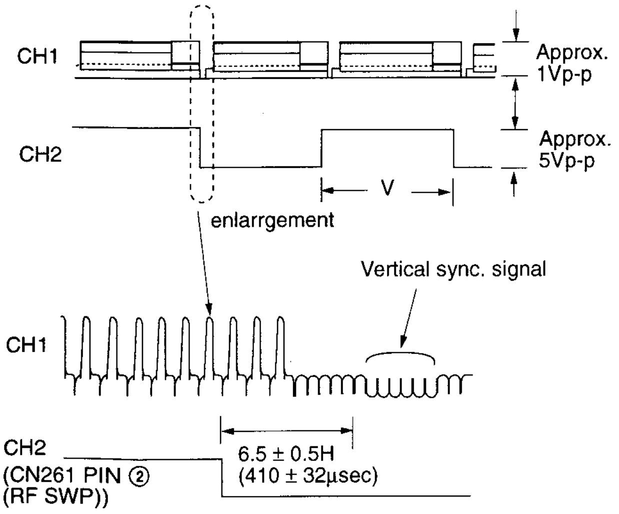


Fig. 7-2-3.

2-4. VIDEO SYSTEM CHECKS AND ADJUSTMENT

For the video system checks, follow the checking procedures given below as a rule. The color bar video signal supplied from the pattern generator is used as the video input signal for the video system adjustment of the recording mode. Check that the signal satisfies the specified value designated in the "Check of input signal" (Fig. 7-2-2)

Unless otherwise specified, set the switches to the following positions.

- CHANNEL switch .... LINE 1
- TAPE SPEED switch .... SP

[Checking Sequence]

1) X'tal OSC Check
2) SYNC AGC Check
3) White clip/Dark clip Check
4) Recording Y Level Check
5) Recording Chroma Level Check
6) Playback Level Check
7) VCO frequency adjustment

2-4-1. X'tal OSC Check (MA-286 Board)

Mode	Playback
Signal	Alignment tape: SP Color bar portion
Measurement point	IC201 pin (58)
Measuring instrument	Oscilloscope and Frequency counter
Specified value	4,433,619 ± 96Hz

Note: A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check that the oscillation frequency satisfies the specified value and that the oscillation voltage is 500 ± 200mVp-p.

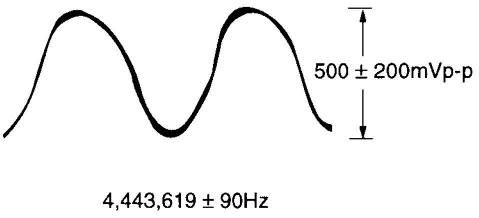


Fig. 7-2-4.

2-4-2. SYNC AGC Check (MA-286 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC201 pin ㊳
Measuring instrument	Oscilloscope
Specified value	A=2.10 ± 0.14Vp-p

[Check Method]

1) Check that the Video signal level (A) satisfies the specified value.

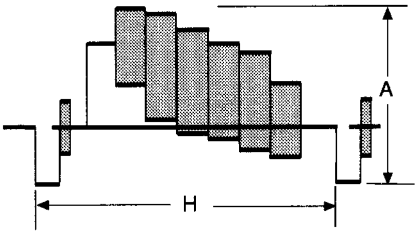


Fig. 7-2-5.

2-4-3. White Clip/Dark Clip Check (MA-286 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC201 pin ㊲
Measuring instrument	Oscilloscope
Specified value	White clip : 190 ± 15% Dark clip : 52.5 ± 5%

Connect a resistor of 3.3Ω between IC201 pin ㊷ and GND.

[Check Method]

1) Check that the white clip level is 190 ± 15% to the white (100%) level.
2) Check that the dark chip level is 52.5 ± 5% to the white (100%) level.

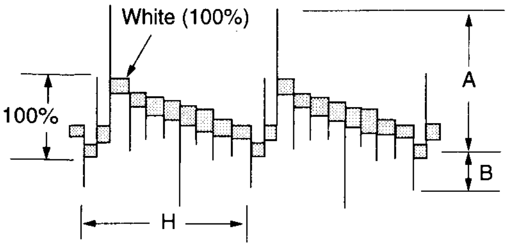


Fig. 7-2-6.

2-4-4. Recording Y Level Check (MA-286 Board)

Mode	E-E
Signal	No-signal
Measurement point	IC201 pin ⑱
Measuring instrument	Oscilloscope
Specified value	A=250 ± 50mVp-p

[Check Method]

1) Check that the recording RF signal satisfies the specified value.

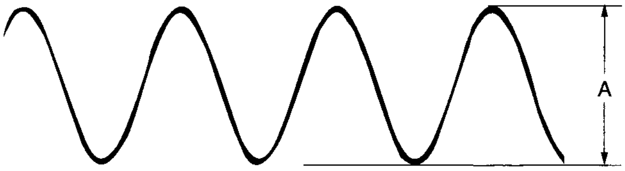


Fig. 7-2-7.

2-4-5. Recording Chroma Level Check (MA-286 Board)

Mode	Recording
Signal	Color bar
Measurement point	IC201 pin ⑭
Measuring instrument	Oscilloscope
Specified value	A=380 ± 40mV

[Check Method]

1) Confirm the amplitude of recording chroma level becomes the specified value.

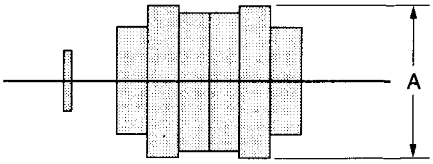


Fig. 7-2-8.

2-4-6. Playback Level Check (MA-286 Board)

Mode	Playback
Signal Alignment	Alignment tape : SP mode color bar portion
Measurement point	Video LINE OUT terminal
Measuring instrument	Oscilloscope
Specified value	A=1.00 ± 0.02Vp-p

[Check Method]

1) Check that the playback level satisfies the specified value.

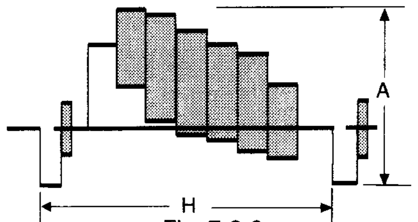


Fig. 7-2-9.

2-4-7. VCO Frequency Adjustment (MA-286 Board)

Mode	Playback
Signal	Alignment tape : SP mode color bar portion
Measurement point	IC500 pin ㉖
Measuring instrument	Digital voltmeter
Adjustment element	CT500
Specified value	A=2.4 ± 2.5Vdc

[Check Method]

1) Adjust CT500 until DC output level at IC 500 pin ㉖ (F. C) satifies the specification.

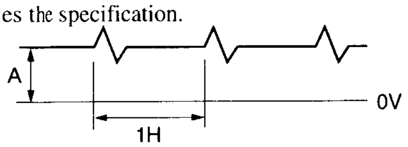


Fig. 7-2-10

2-5. AUDIO SYSTEM ADJUSTMENT

- For the adjustment of the audio system, perform in the SP mode if there is no special notes. Use the alignment tape.

[Connecting Instruments]

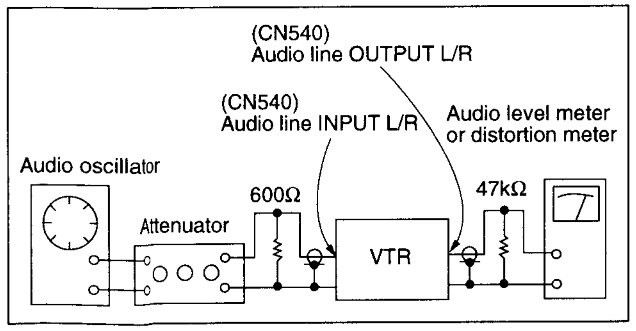

(CN540)
Audio line OUTPUT L/R
(CN540)
Audio line INPUT L/R
Audio level meter
or distortion meter
Audio oscillator
Attenuator
600Ω
47kΩ
VTR

Fig. 7-2-10.

- Adjust in the SP mode if there is no special indications.
- Perform the adjustment setting the switch on the following positions.
- CHANNEL switch .... LINE 1

[Adjustment Method]

1. ACE head adjustment.....Refer to the VHS mechanical adjustment manual Ⅳ.
2. E-E output level check
3. Overall Output level and distortion factor check
4. Overall noise level check.

2-5-1. ACE Head Adjustment

Refer to the "VHS mechanical adjustment manual Ⅳ" (9-973-623-11).

2-5-2. E-E Output Level Check

Mode	E-E
Signal	400Hz, –7.5dBs : IC540 pin ⑤ (②)
Measurement point	CJ540 L/R
Measuring instrument	Audio level meter
Specified value	–7.5 ± 2dBs

( ) : R-ch

[Check Method]

1) Input signal of 400Hz and –7.5dBs to the CN540 pin ⑤ (②).
2) Check that the audio output level is –7.5 ± 3dBs.

2-5-3. Overall Output Level and Distortion Factor Check

Mode	Self-record playback
Signal	400Hz, –7.5dBs : IC540 pin ⑤ (②)
Measurement point	IC540 pin ③ (①)
Measuring instrument	Audio level meter and Distortion meter
Specified value	Playback Level: –6.3 ± 3dBs Distortion: 4.0% or less

( ) : R-ch

[Check Method]

1) Input signal of 400Hz and –7.5dBs to the audio input.
2) Record signal.
3) Playback the recorded portion.
4) Check that the output level is –6.3 ± 3dBs.
5) Check that the distortion factor is 4.0% or less.

2-5-4. Overall Noise Level Check

Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio LINE IN terminal)
Measurement point	IC540 pin ③ (①)
Measuring instrument	Audio level meter (IHF-A weighing filter is used)
Specified value	– 45.5dBs or less

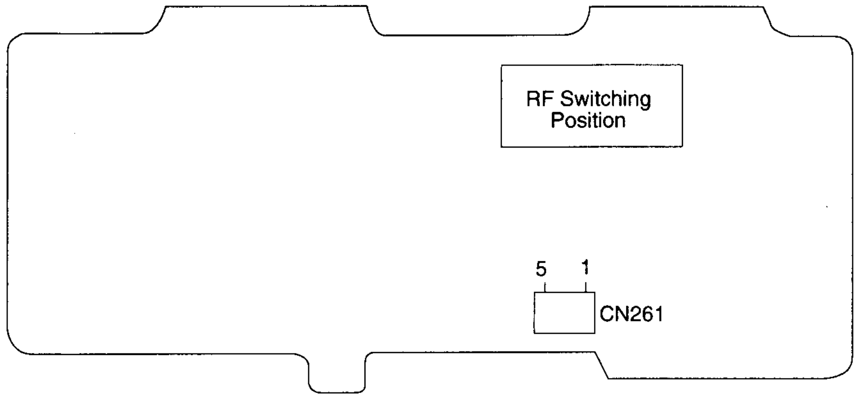
( ) : R-ch

[Check Method]

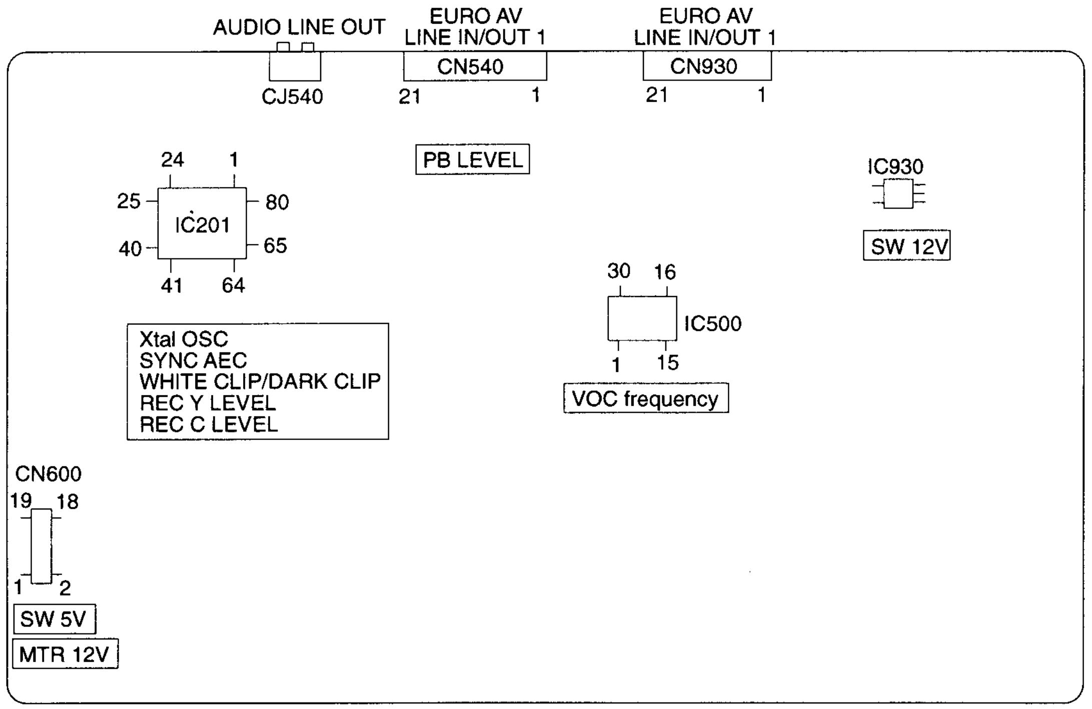
1) Record.
2) Playback recorded portion.
3) Check that noise level is – 45.5dBs or less.

2-6. ADJUSTMENT PARTS LOCATION DIAGRAM

RP-217 BOARD (Comductor side)


RF Switching Position
5
1
CN261

MA-286 BOARD (Comductor side)


AUDIO LINE OUT
EURO AV LINE IN/OUT 1
EURO AV LINE IN/OUT 1
CN540
CN930
CJ540
21
1
21
1
PB LEVEL
IC930
24
1
25
80
IC201
40
65
41
64
SW 12V
30
16
IC500
1
15
VOC frequency
Xtal OSC
SYNC AEC
WHITE CLIP/DARK CLIP
REC Y LEVEL
REC C LEVEL
CN600
19
18
1
2
SW 5V
MTR 12V

SLV-E325EG/E475EG/E570EE/E570EG/E715B/E717VC/E720B/E720BZ/E720EE
E720EG/E720EX/E720NC/E720NP/E720UX/E720VC/E720VP/E725NC
RMT-V197/V197A/V197B/V198/V198A/V198J/V198K/V199/V199A

2033143

V17923

SONY

SERVICE MANUAL

East European Model
Greek Model
SLV-E325EG/E475EG/E570EE/
E570EG/E720EE/E720EG
French Model
SLV-E715B/E720B/E720BZ
Irish Model
SLV-E720EX
North European Model
SLV-E720NC/E725NC
Spanish Model
SLV-E720NP
UK Model
SLV-E720UX
German Model
SLV-E717VC/E720VC
Austrian Model
German Model
SLV-E720VP

SUPPLEMENT-1

File this supplement with the service manual.

(99-018)

Subject: EEP ROM INITIAL DATA INPUT

1. EEP ROM INITIAL DATA INPUT

When EEP ROM (IC472 on FR-119 board) was changed, make it sure to input the data shown below and to perform "2-3-1. RF Switching Position Adjustment".

Input Method:

1) Connect the LANC jig (J-6090-051-A) to CN164 on MA-286 board.
2) Turn on the power.
3) Input Data: 80 in Address: 00 on Page: 1.
4) Input data on Page F as following table.

	Page	F					
	Address	01	02	93	94	B5	B6
Data	SLV-E325EG	04	00	20	01	60	10
	SLV-E475EG	04	01	20	01	60	10
	SLV-E570EE	04	02	20	01	60	10
	SLV-E570EG	04	03	20	01	60	10
	SLV-E715B	02	04	25	00	70	10
	SLV-E717VC	02	01	20	00	60	10
	SLV-E720B	02	04	25	00	70	10
	SLV-E720BZ	02	05	25	00	70	10
	SLV-E720EE	04	04	20	01	60	10
	SLV-E720EG	04	05	20	01	60	10
	SLV-E720EX	03	01	24	00	70	10
	SLV-E720NC	02	02	20	00	70	10
	SLV-E720NP	02	03	20	00	70	10
	SLV-E720UX	03	00	24	00	70	10
	SLV-E720VC	02	01	20	00	60	10
	SLV-E720VP	02	00	20	00	60	10
	SLV-E725NC	02	02	20	00	70	10

5) Turn off the power
6) Disconnect the adjusting remote commander and LANC jig from the connector (CN164).

Note: When connecting or disconnecting LANC jig to CN164 on MA-286 board, first connect the adjusting remote commander (J-6082-053-B) to the jack on LANC jig before connecting LANC jig to CN164. Connection or disconnection of the adjusting remote commander in the condition LANC jig is connected to CN164 causes IC LINK (PS001) to damage itself.

Sony Corporation
Home Video Company

9910564-1
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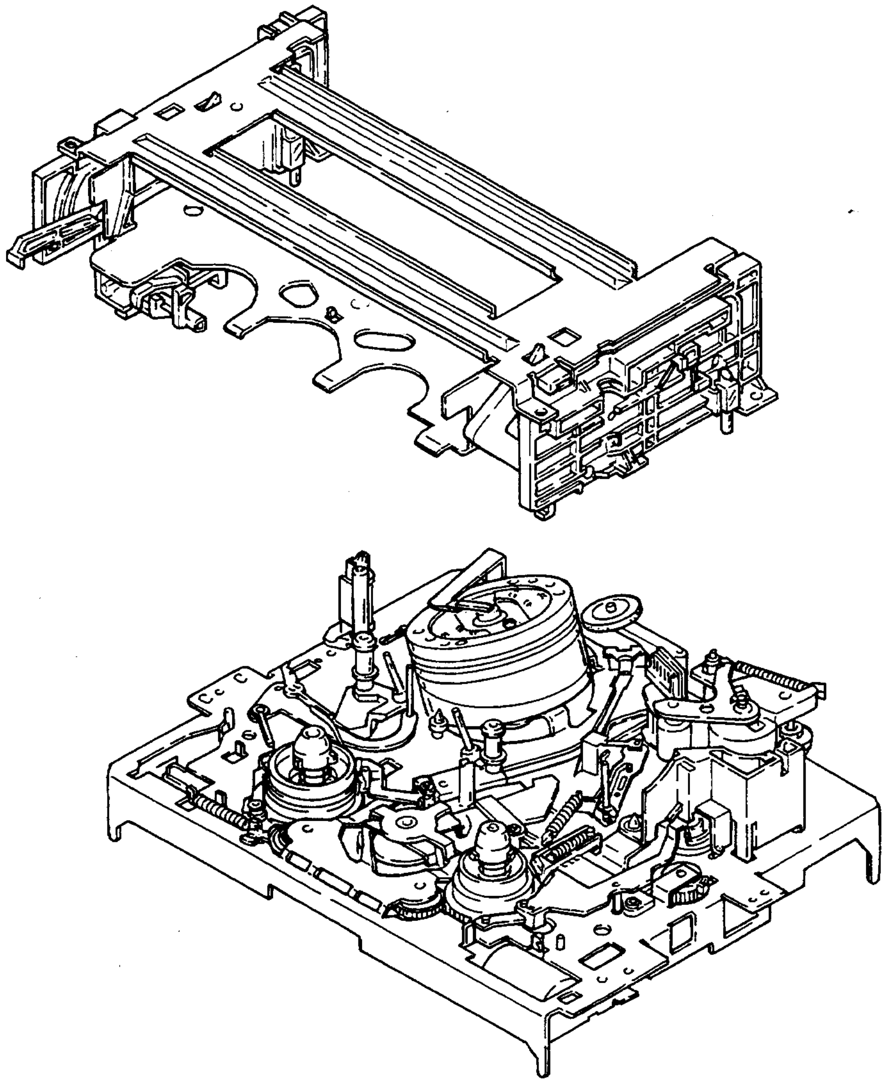
Published by Quality Assurance Dept.

VHS MECHANICAL ADJUSTMENT MANUAL IV

H MECHANISM

Please use with the service manual.



VHS VIDEO CASSETTE RECORDER

SONY®

MICROFILM

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1. PREPARATION FOR MECHANISM CHECK ADJUSTMENT AND REPLACEMENT

Refer to the service manual, "DISASSEMBLY" for removal of the cabinet and boards.

1-1. LOADING AND THREADING PROCEDURE WHEN THE POWER TURNS OFF (Fig. 1-1)

1-1-1. LOADING AND THREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow 🅐 direction until loading and threading are end.

1-1-2. LOADING AND THREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Applying approx. +9 V (300 mA) to cam motor with regulated DC power supply makes it loading and threading.

Note: When loading and threading without cassette, claws are caught in four positions as following figure (in the order ① → ② → ③ → ④).
So release them with hands.

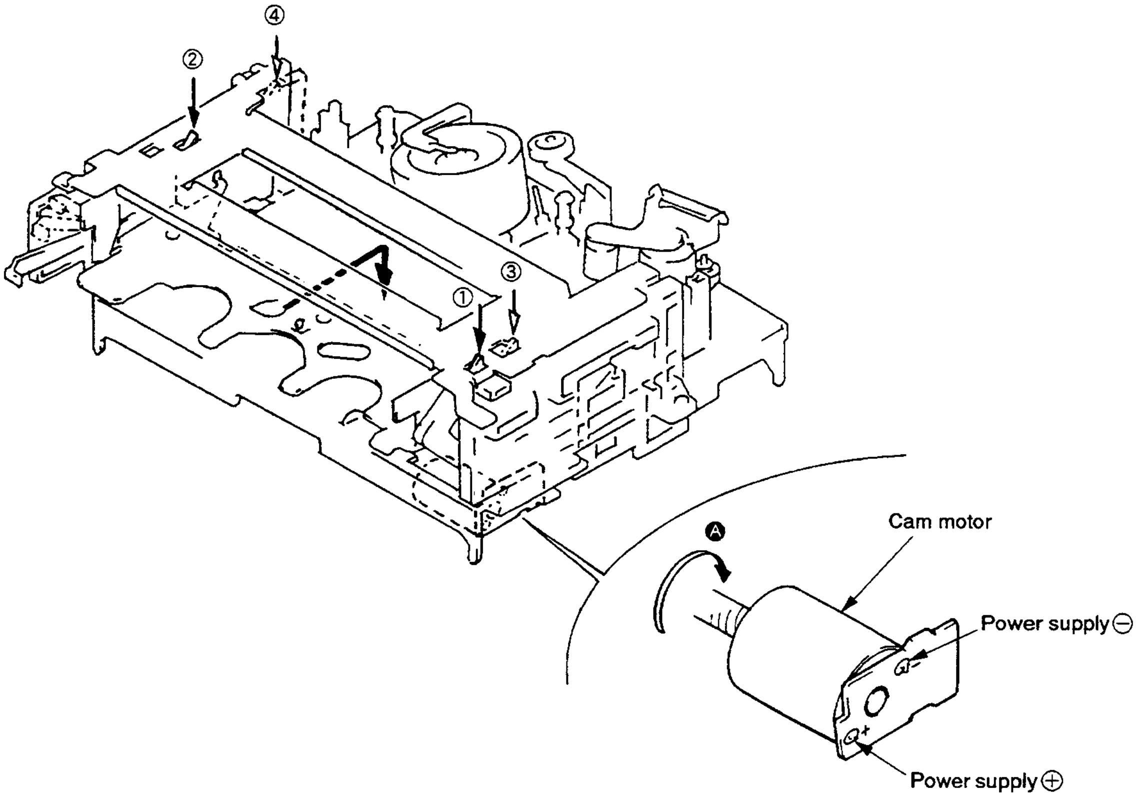


Fig. 1-1

1-2. UNLOADING AND UNTHREADING PROCEDURE WHEN THE POWER TURNS OFF (Figs. 1-2 and 1-3)

1-2-1. UNLOADING AND UNTHREADING PROCEDURE WITH HANDS

1) Turn cam motor in the arrow Ⓑ direction until unthreading is end.
2) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.
3) Turn cam motor in the arrow Ⓑ direction until unloading is end.

1-2-2. UNLOADING AND UNTHREADING PROCEDURE WITH REGULATED DC POWER SUPPLY

1) Apply approx. +9 V (300 mA) to contrary polarities of cam motor.
2) Unthreading operation begins, tape guides return to their original positions (Unthreading operation is end but tape remains), then stop cam motor by turning power off.

Note: When unloading begins and cassette lid is closed, turn cam motor in the arrow Ⓐ direction to open tape guard.

3) Turn capstan motor in the arrow Ⓒ direction to take up tape in cassette.

Note: That tape is not caught at pinch roller. (Fig. 1-3)

4) Check that tape is not loosened completely, and apply approx. +9 V (300 mA) to contrary polarities of cam motor with regulated DC power supply. (Fig. 1-2)

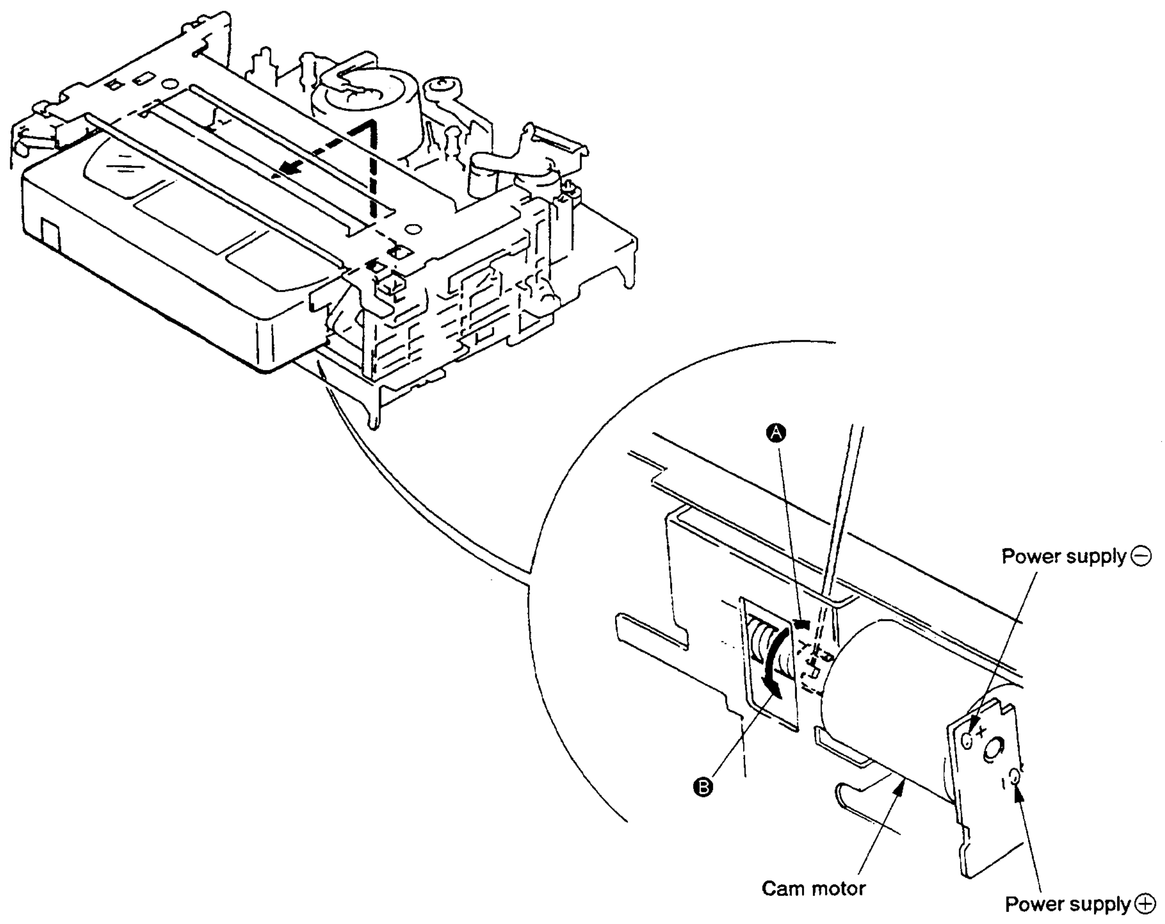


Fig. 1-2

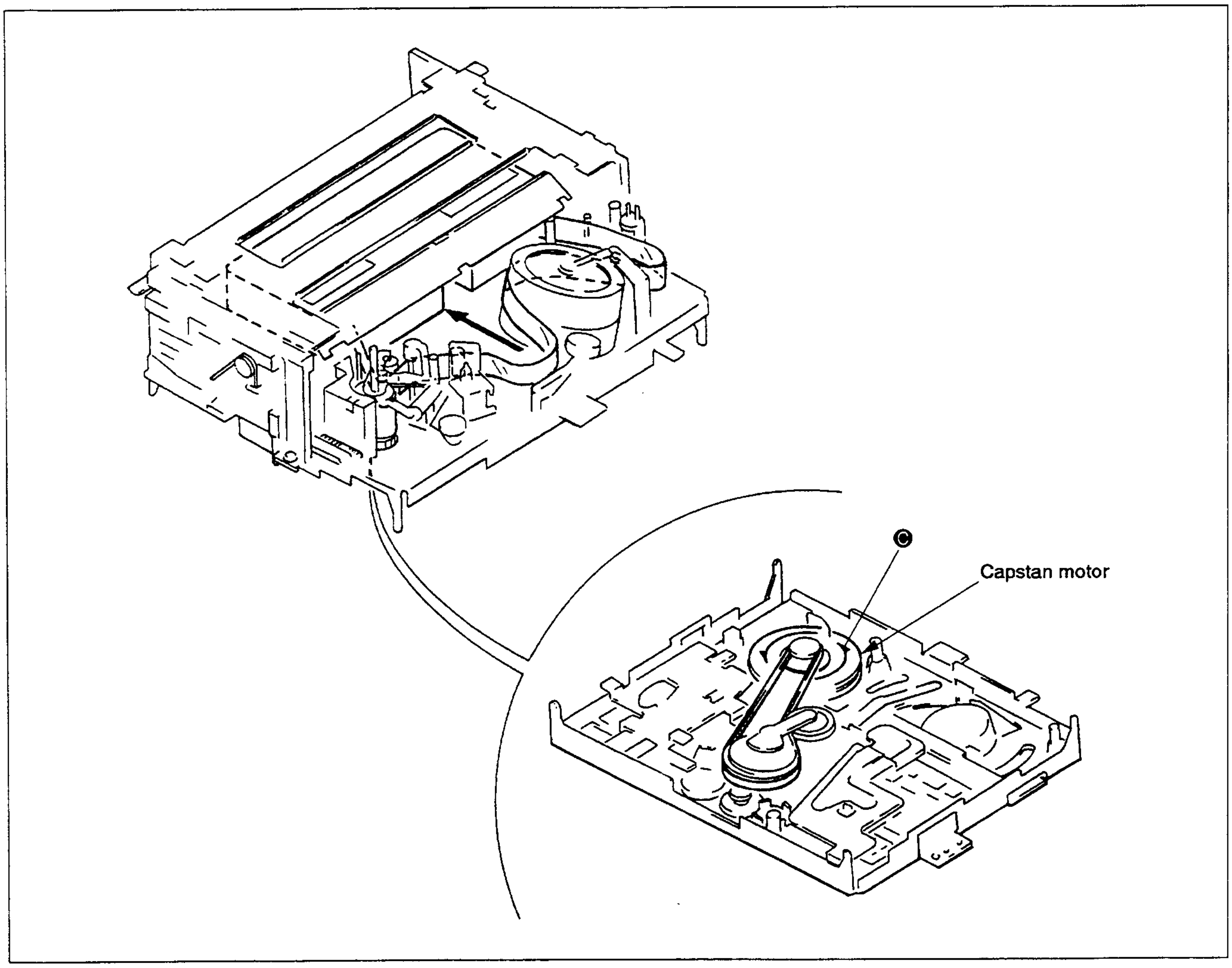

©
Capstan motor

Fig. 1-3

1-3. HOW TO COMPLETE THREADING WITHOUT CASSETTE COMPARTMENT (Fig. 1-4)

Note 1: Put the FL block assembly removed the FL top plate on the bottom not to put dust or grease the top sensor and the end sensor luminous plates or not to scratch them. (Fig. A)

1) Pull out AC plug from wall outlet.
2) Shade near the end and top sensors with a black masking tape on the like.
3) Press cassette in/rec proof switch with a tip of screwdriver or the like.
4) Connect AC plug to wall outlet.
5) Release cassette in/rec proof switch by putting off a tip of screwdriver or the like.
   (At this time, power turns on, rewind operates for 10 seconds, after that power turns off.)

Note 2: In this condition, each mode can be set to video cassette recorder. (including recording mode)
However, fast forward should be done after rewinding for 15 seconds or more.

Note 3: After above mentioned operation, be sure to return the mode in the following order.

1) Remove the tape near the end and top sensors.
2) Pull out AC plug from wall outlet to reset the system control microcomputer.

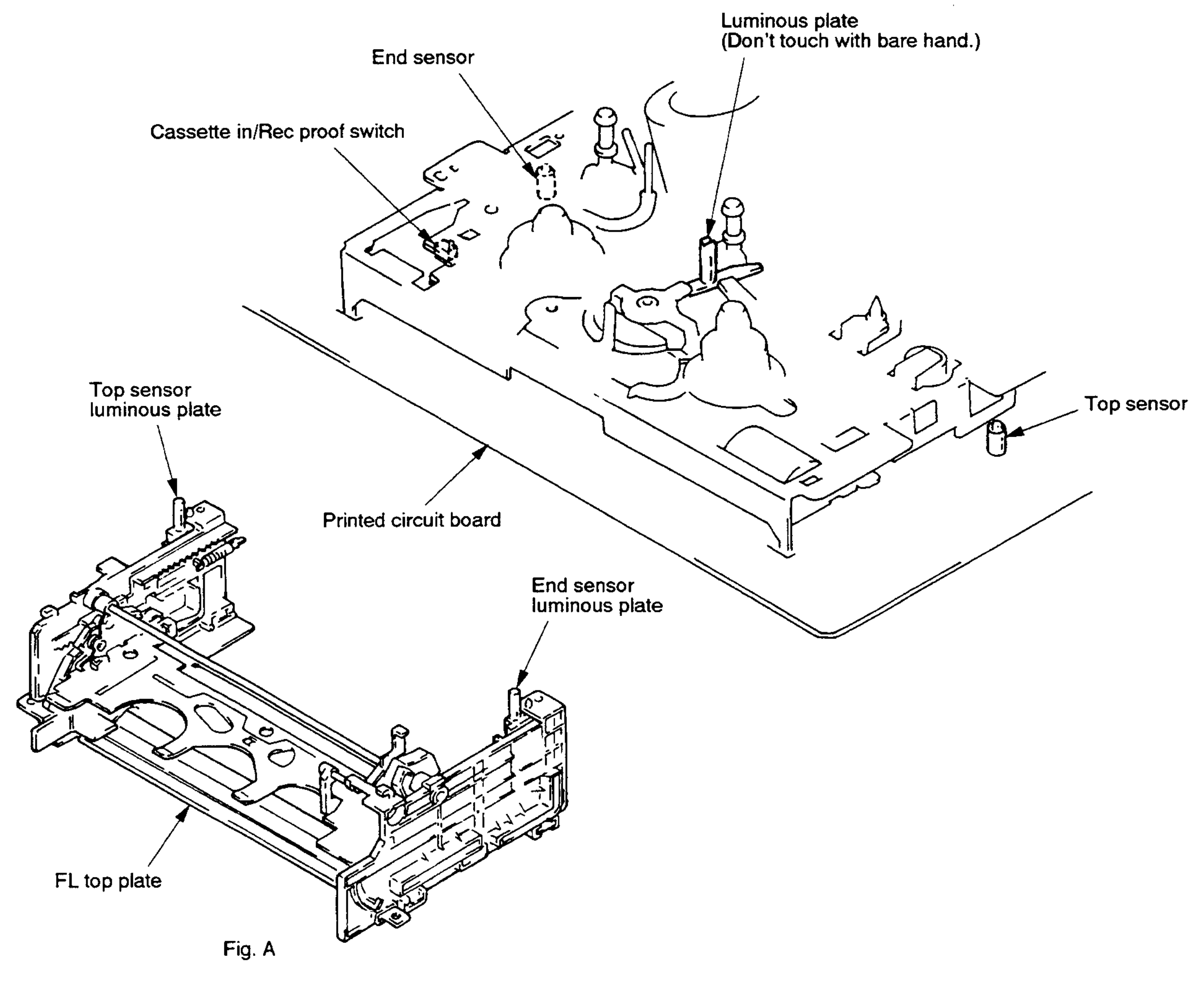

Luminous plate
(Don't touch with bare hand.)
End sensor
Cassette in/Rec proof switch
Top sensor luminous plate
Top sensor
Printed circuit board
End sensor luminous plate
FL top plate
Fig. A

Fig. 1-4

2. PERIODIC CHECK AND REPLACEMENT

In order to obtain the best performance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

* The following must be done after every repair regardless of how many hours the user has operated the machine.

2-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-9) which has been dipped in cleaning fluid (Jig Ref. No. J-8) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)
2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

2-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

2-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that been dipped in cleaning fluid.

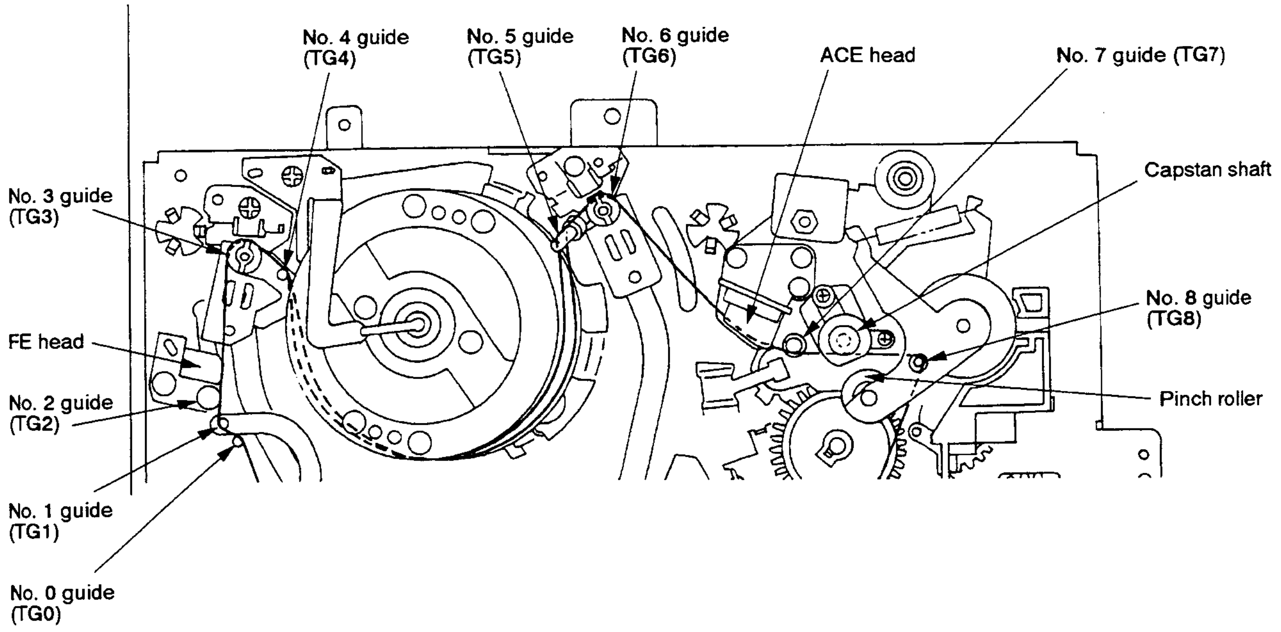

No. 4 guide (TG4)
No. 5 guide (TG5)
No. 6 guide (TG6)
ACE head
No. 7 guide (TG7)
Capstan shaft
No. 3 guide (TG3)
No. 8 guide (TG8)
FE head
Pinch roller
No. 2 guide (TG2)
No. 1 guide (TG1)
No. 0 guide (TG0)

Fig. 2-1 Parts requiring cleaning

2-4. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to users operating hours.

Operating Hours (H) Maintenance & Check		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Tape Transportation System	Cleaning of tape transportation system	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning and degaussing of ACE assembly	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of upper drum assembly	○	○	○	○	○	○	○	○	○	○	The life of the head varies, depending on operational conditions and method.
Performance Confirmation	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which causes abnormal sound.
	Measurement of FWD back tension	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to 4-1-1. Specified value: adjust to 36 to 44 g•cm (when measured with torque cassette tape)
	Confirmation of brake system	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to section.
	Confirmation of record & playback functions	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.
	Measurement of forward torque	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust to 70 to 120 g•cm

○ Cleaning ☆ Confirmation

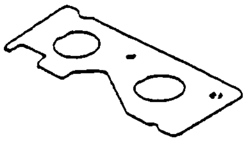
Note: On overhaul

When overhauling the unit, replace parts as indicated in the above table.

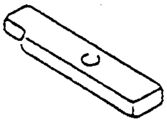
2-5. TOOLS AND FIXTURES REQUIRED FOR SERVICING

Ref No.	Name	Part No.	Carved Jig No.	Remarks
J-1	Master Plane	H-7099-279-H		Applicable to S-VHS
J-2	Reel Disk Height Jig	H-7099-038-H		
J-3	Torque Gauge Adaptor	H-7099-035-H		
J-4	0.93 mm Torque Gauge	H-7099-039-H		
J-5	Hex. Wrench	H-7099-202-H		
J-6	Torque Measurement Cassette VHT-063S	J-6082-011-A		For FWD & back tension torque measurement.
	Torque Measurement Cassette VHT-404S	J-6082-012-A		For CUE and review torque measurement.
J-7	Alignment Tape JVC-MH-1 (NTSC) 24HASF-2 (NTSC Hi-Fi) JVC-MH-2 (PAL) JVC-MH-4 (SECAM)	 H-7099-046-H H-7099-153-H H-7099-052-H H-7099-053-H		
J-8	Cleaning Fluid	Y-2031-001-0	———	
J-9	Chamois Leather	2-034-697-00	———	
J-10	Head Demagnetizer	Widely available	———	Demagnetize video heads and audio heads.
J-11	Dental Mirror (With handle) Dental Mirror (Mirror)	J-6080-029-A J-6080-030-1	SL-5052	Tape path and tape traveling adjustments or checks.
J-12	FLOIL SG-055G	7-651-000-09		
J-13	Diamond Oil NT-68	7-661-018-18		
J-14	Screw Lock G (1401B)	7-432-114-11		

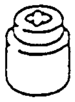
J-1



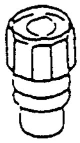
J-2



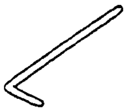
J-3



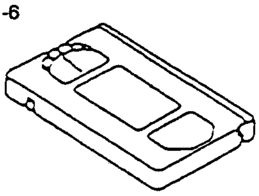
J-4



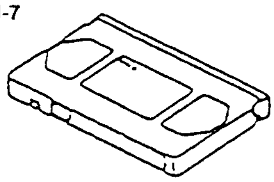
J-5



J-6

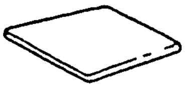


J-7

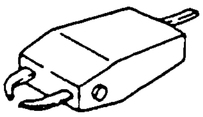


J-8

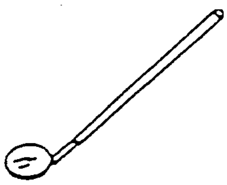
J-9



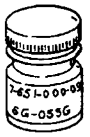
J-10



J-11

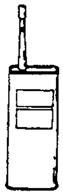


J-12



J-13

J-14



3. MAINLY MECHANICAL PARTS REPLACEMENT

Notes:

- Refer to the service manual, "DISASSEMBLY" for removal of the cabinet and boards.
- On mounting, while referring to notes on mounting perform reversely in the removal order.
- When replacing greased parts, grease them in the same way.
- Do not oil, grease or touch with bare hands the surfaces contacts tape of guides and brake shoes.
- Install gears to engage each other.
- Basically, disassembling and assembling should be done in the unthreading-end condition.

3-1. FL BLOCK ASSEMBLY (Fig. 3-1)

1) Remove screws ①.
2) Remove FL block assembly ② in the arrow 🅐 direction.

Note: Be careful not to damage claws on the bottom and front.

[Note on Mounting]

- First insert claws on the bottom and front not to damage.
- Engage FL slide plate to FL driving gear with slightly sliding FL slide plate. (Fig. A)
- Keep clean top sensor and end sensor luminous plates. (Refer to 1-3.)

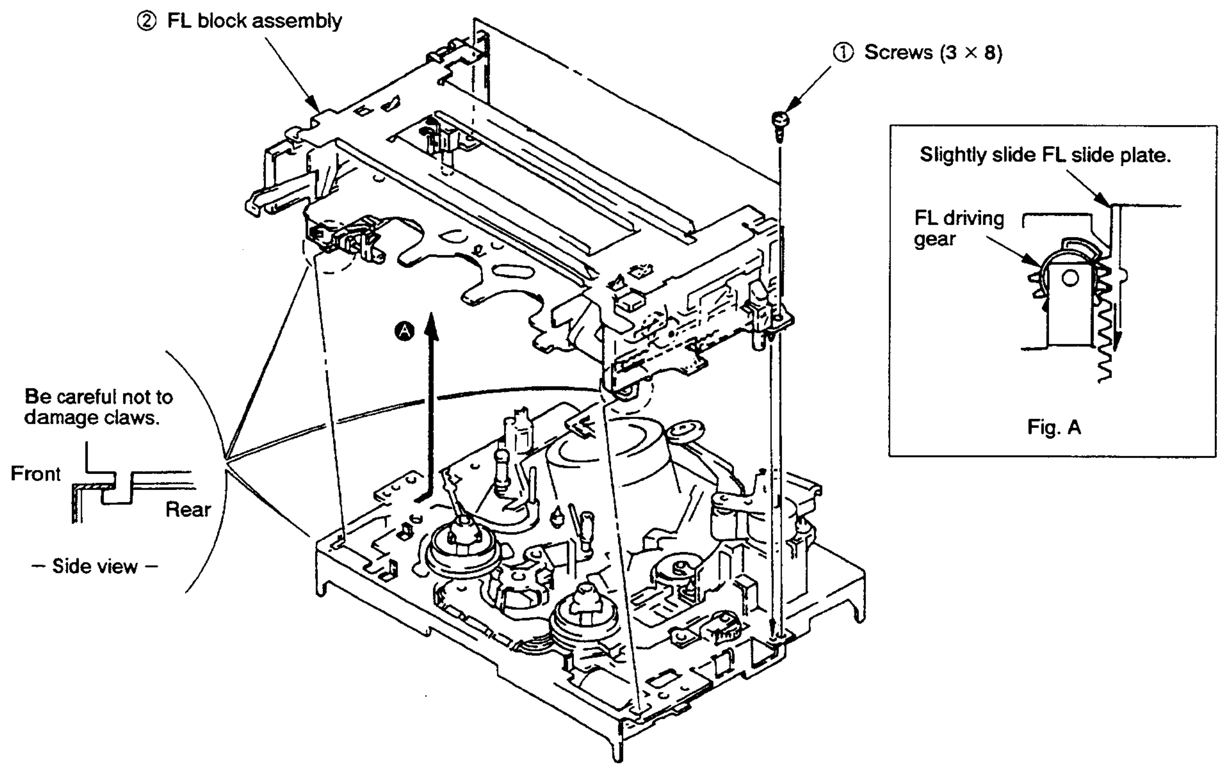

② FL block assembly
① Screws (3 × 8)
🅐
Be careful not to damage claws.
Front
Rear
– Side view –
Slightly slide FL slide plate.
FL driving gear
Fig. A

Fig. 3-1

3-2. DRUM ASSEMBLY (Fig. 3-2)

1) Remove screw ①.
2) Remove ground shaft assembly ② not to touch its tip with bare hand or tools.
3) Remove screws ③ to remove drum assembly ④.

[Note on Mounting]

- Don't touch head chips ⑤ and ground shaft assembly ④ with bare hand or tools.
- Keep clean the surface contacts tape of drum assembly ④.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

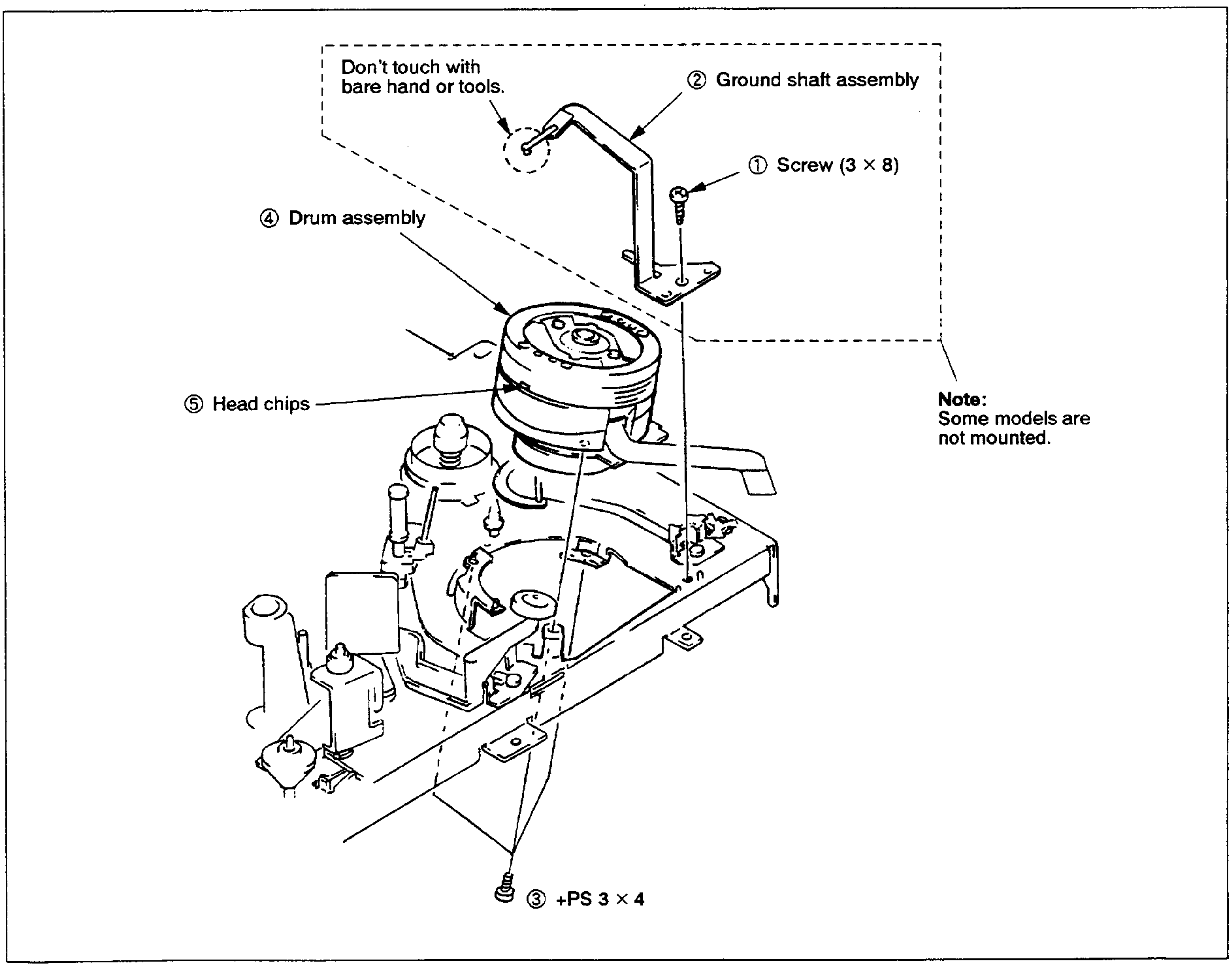

Don't touch with bare hand or tools.
② Ground shaft assembly
① Screw (3 × 8)
④ Drum assembly
⑤ Head chips
Note:
Some models are not mounted.
③ +PS 3 × 4

Fig. 3-2

3-3. TIMING BELT (Fig. 3-3)

1) Remove screw ① to remove tension vehicle arm assembly ②.
2) Remove timing belt ③.

[Note on Mounting]

- Tighten screw ① while pressing tension vehicle arm in the arrow Ⓐ direction.

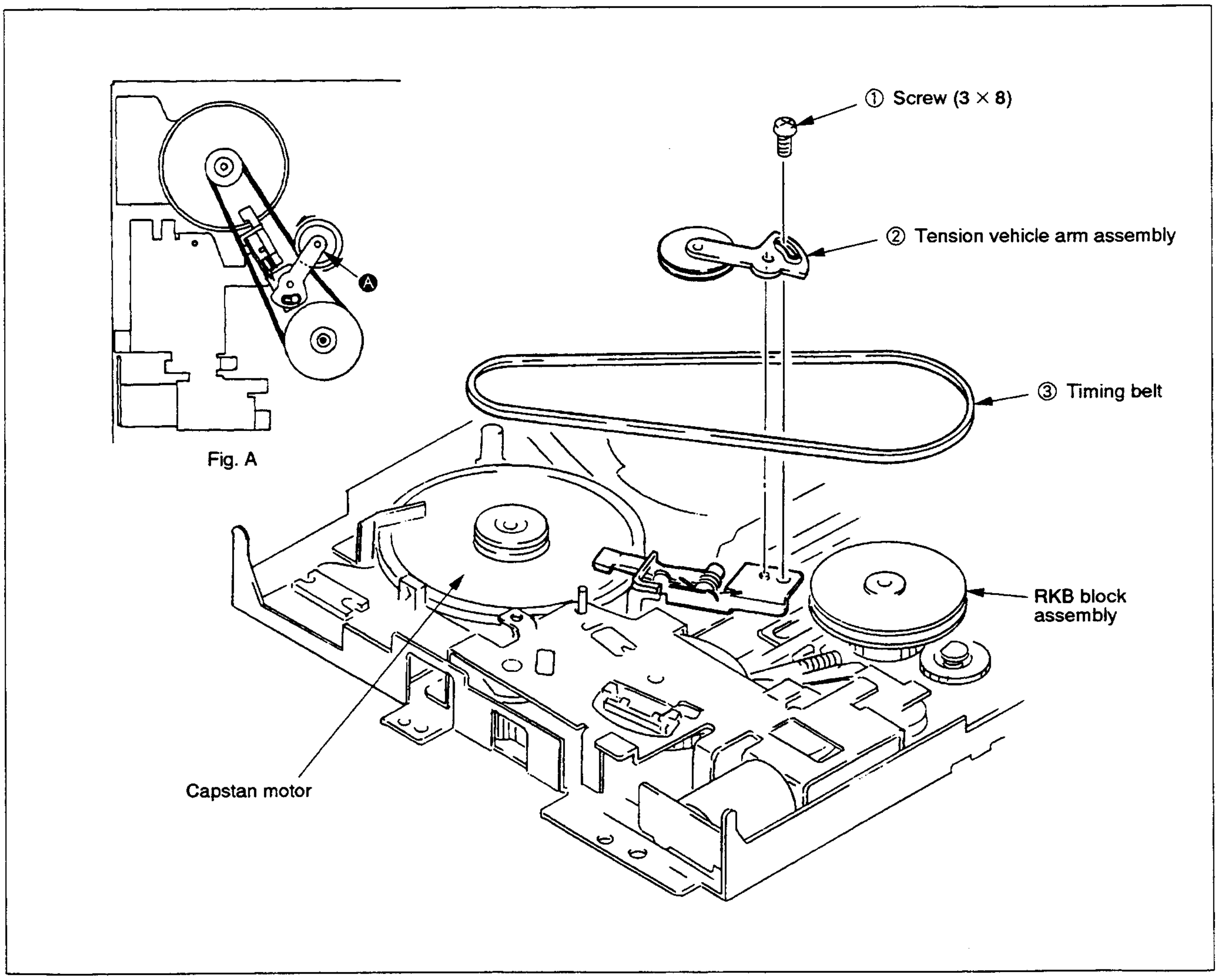


Fig. A
Ⓐ
① Screw (3 × 8)
② Tension vehicle arm assembly
③ Timing belt
RKB block assembly
Capstan motor

Fig. 3-3

3-4. CAP BRAKE ASSEMBLY (Fig. 3-4)

1) Remove tension vehicle arm assembly. (Refer to 3-3)
2) Remove torsion coil spring ① from portion 🅐 to remove CAP brake assembly.

[Note on Mounting]

- Mount torsion coil spring ① to CAP brake assembly ② in the order 🅐 and 🅑. (Fig. A)
- Put the fulcrum of CAP brake assembly ② to CAP brake shaft ③ and the tip of torsion coil spring to 🅒.
- Don't touch brake shoe 🅓 with bare hand.

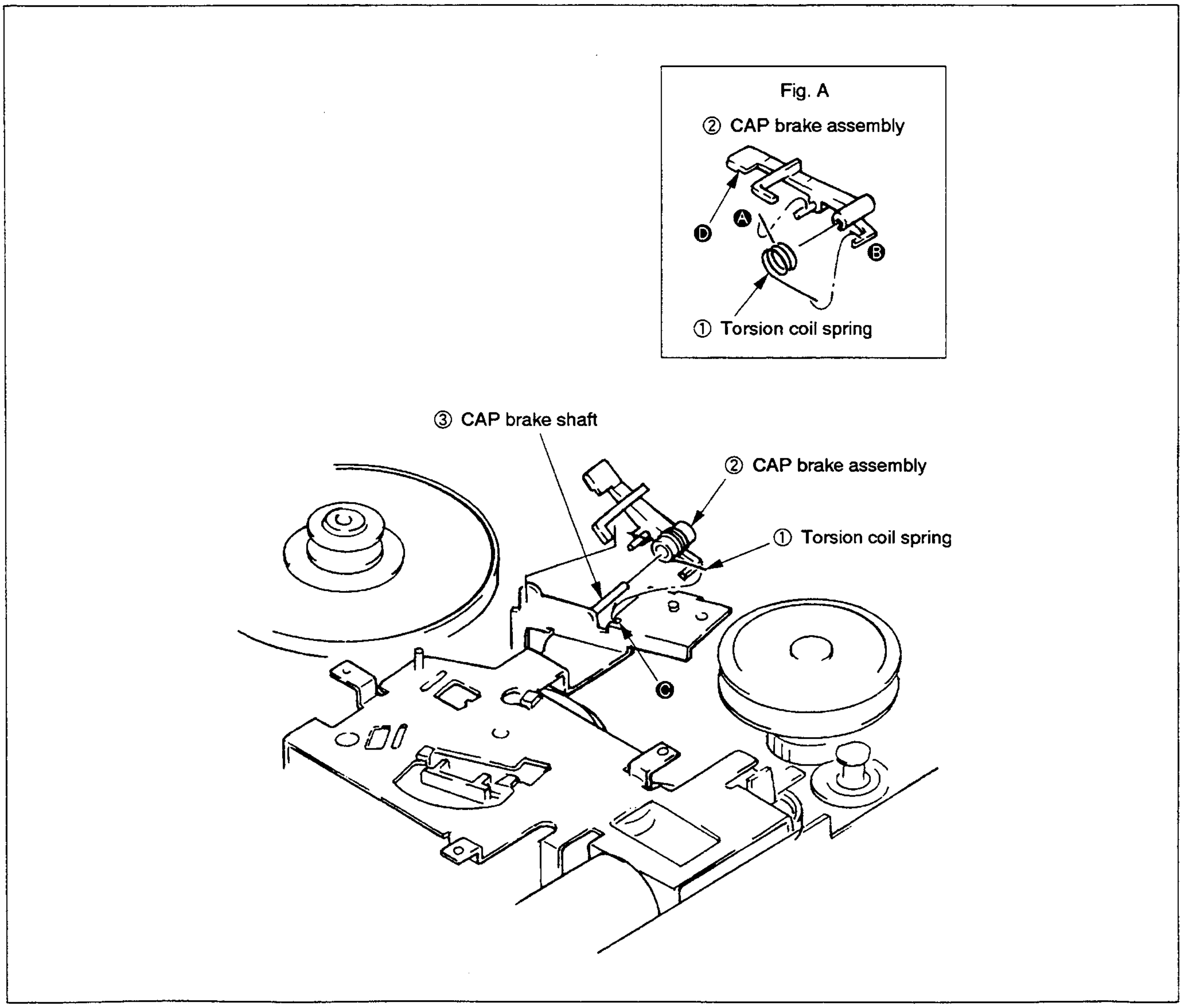


Fig. A
② CAP brake assembly
🅓
🅐
🅑
① Torsion coil spring
③ CAP brake shaft
② CAP brake assembly
① Torsion coil spring
🅒

Fig. 3-4

3-5. TG2 ROLLER, FE HEAD ASSEMBLY (Fig. 3-5)

1) Remove claw Ⓐ to pull out TG2 roller ①.
2) Remove screw ② to pull out FE head assembly.

[Note on Mounting]

- Keep clean the surface contacts tape of TG2 roller ①.

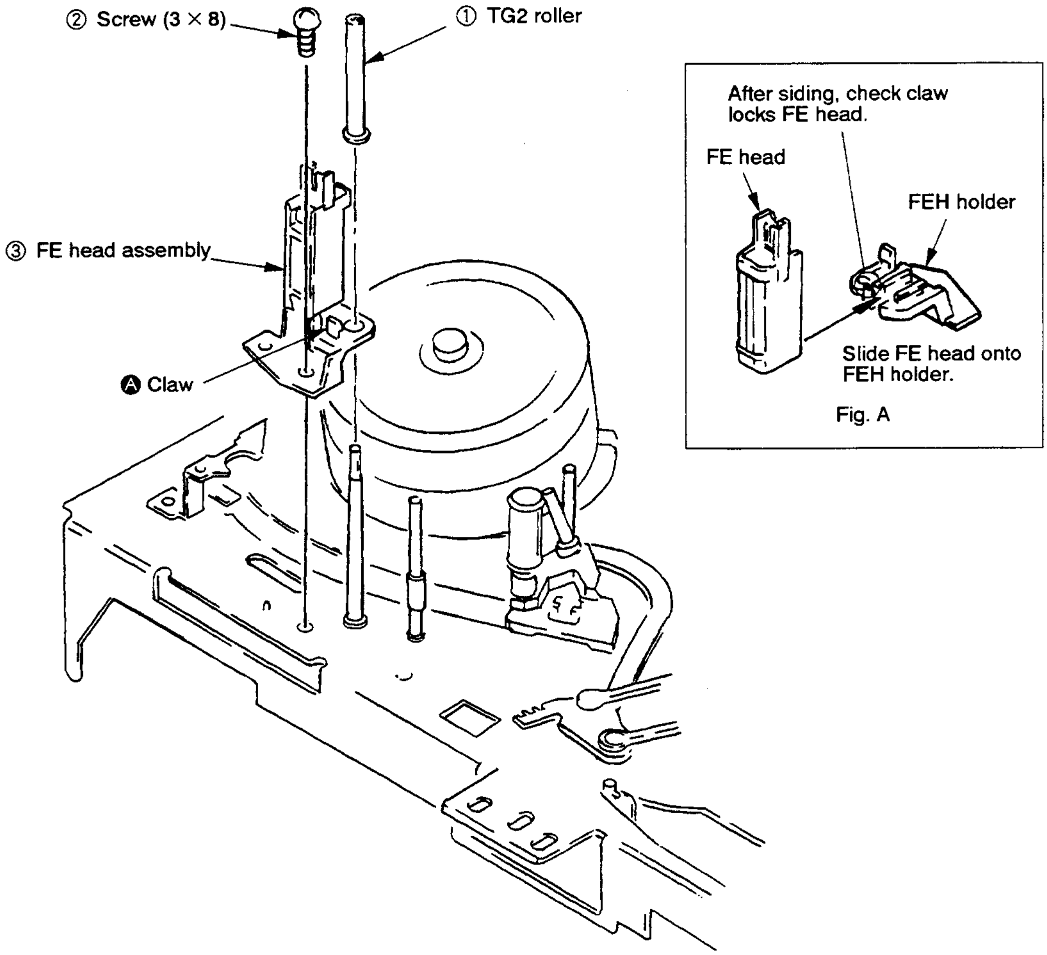

② Screw (3 × 8)
① TG2 roller
③ FE head assembly
Ⓐ Claw
After siding, check claw locks FE head.
FE head
FEH holder
Slide FE head onto FEH holder.
Fig. A

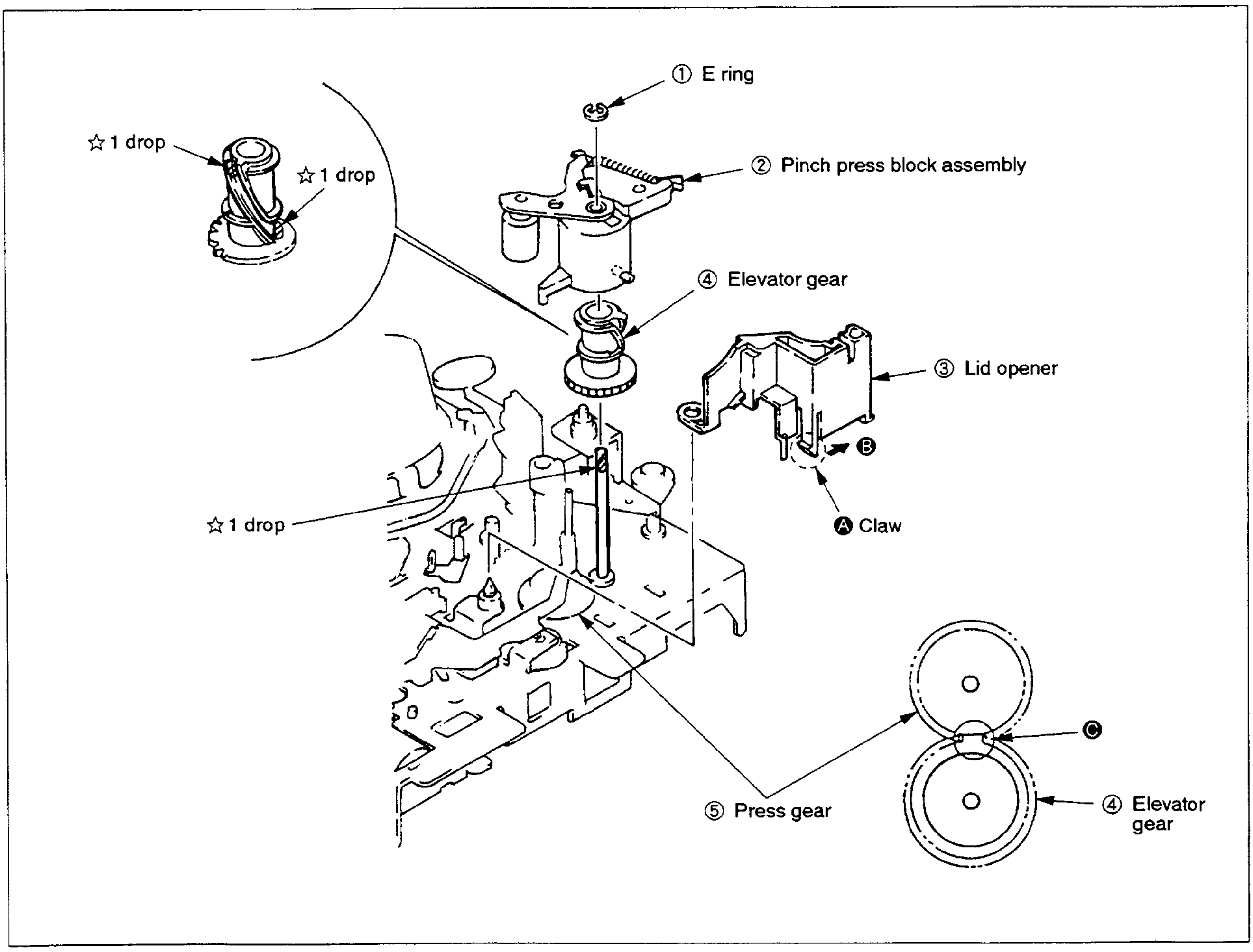
Fig. 3-5

3-6. PINCH PRESS BLOCK ASSEMBLY, ELEVATOR GEAR (Fig. 3-6)

1) Remove E ring ① to pull out pinch press block assembly ②.
2) Remove lid opener ③ by pressing claw Ⓐ in the arrow Ⓑ direction.
3) Pull out elevator gear ④.

[Note on Mounting]

- Apply grease FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions.
- Be sure to match the phase Ⓒ between elevator gear ④ and press gear ⑤ on mounting elevator gear ④.



① E ring
☆1 drop
☆1 drop
② Pinch press block assembly
④ Elevator gear
③ Lid opener
Ⓑ
Ⓐ Claw
☆1 drop
Ⓒ
⑤ Press gear
④ Elevator gear

Fig. 3-6

3-7. ACE BLOCK ASSEMBLY (Fig. 3-7)

1) Move torsion coil spring (ACE) ① in the arrow Ⓐ direction.
2) Remove ACE adjustment screw ②.
3) Remove AC height adjustment nut ③ to pull out ACE block assembly ④.

[Note on Mounting]

- Keep clean the surface contacts tape of ACE block assembly ④.
- Be sure to hang torsion coil spring (ACE) ① in the arrow Ⓑ direction.
- Set ACE adjustment screw ② to the height as shown in Fig. A.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.
- After adjustment apply Screw Lock G (1401B) (Jig Ref. No. J-14) at ☆ marked portion.

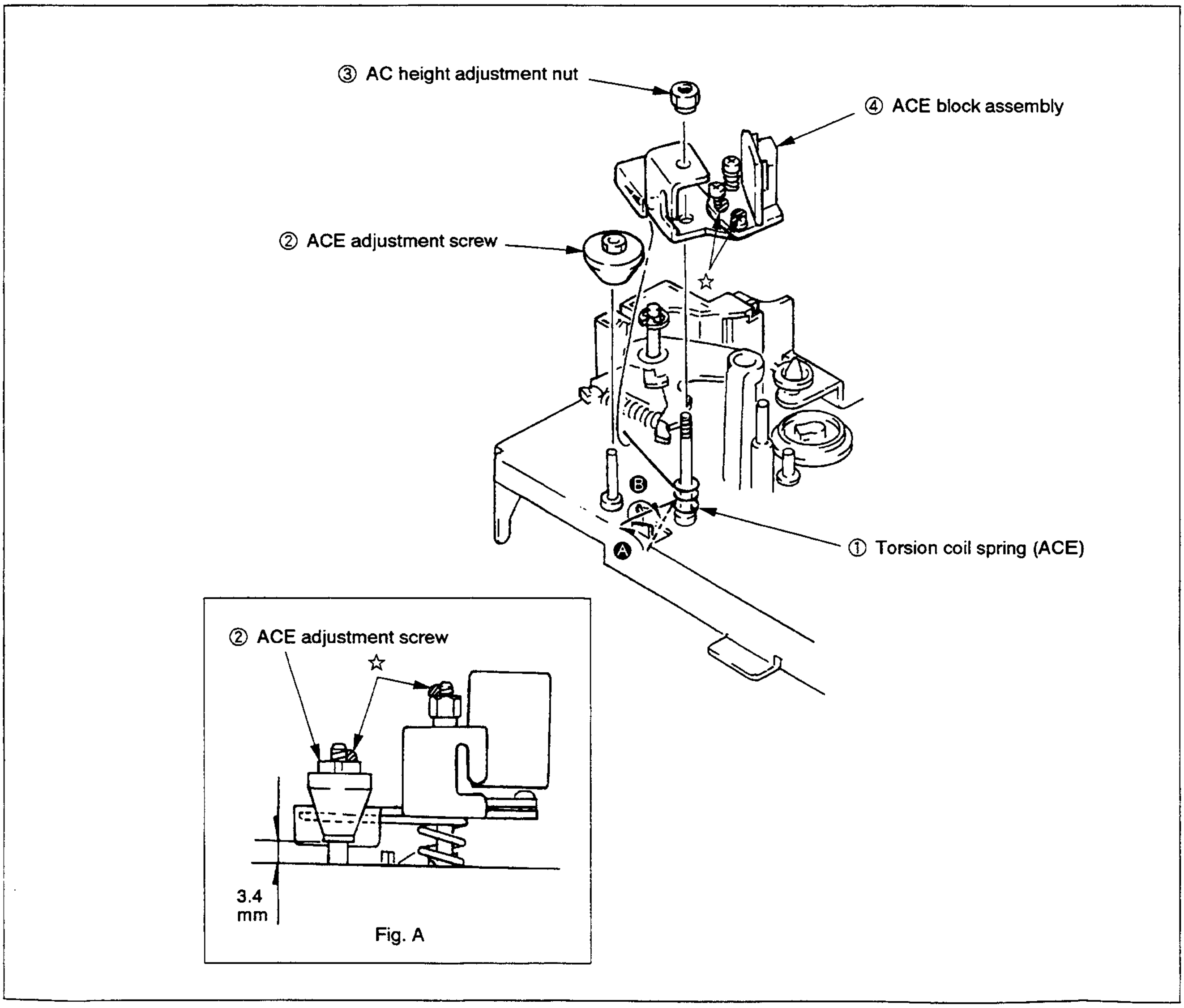

③ AC height adjustment nut
④ ACE block assembly
② ACE adjustment screw
☆
Ⓑ
Ⓐ
① Torsion coil spring (ACE)
② ACE adjustment screw
☆
3.4 mm
Fig. A

Fig. 3-7

3-8. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Fig. 3-8)

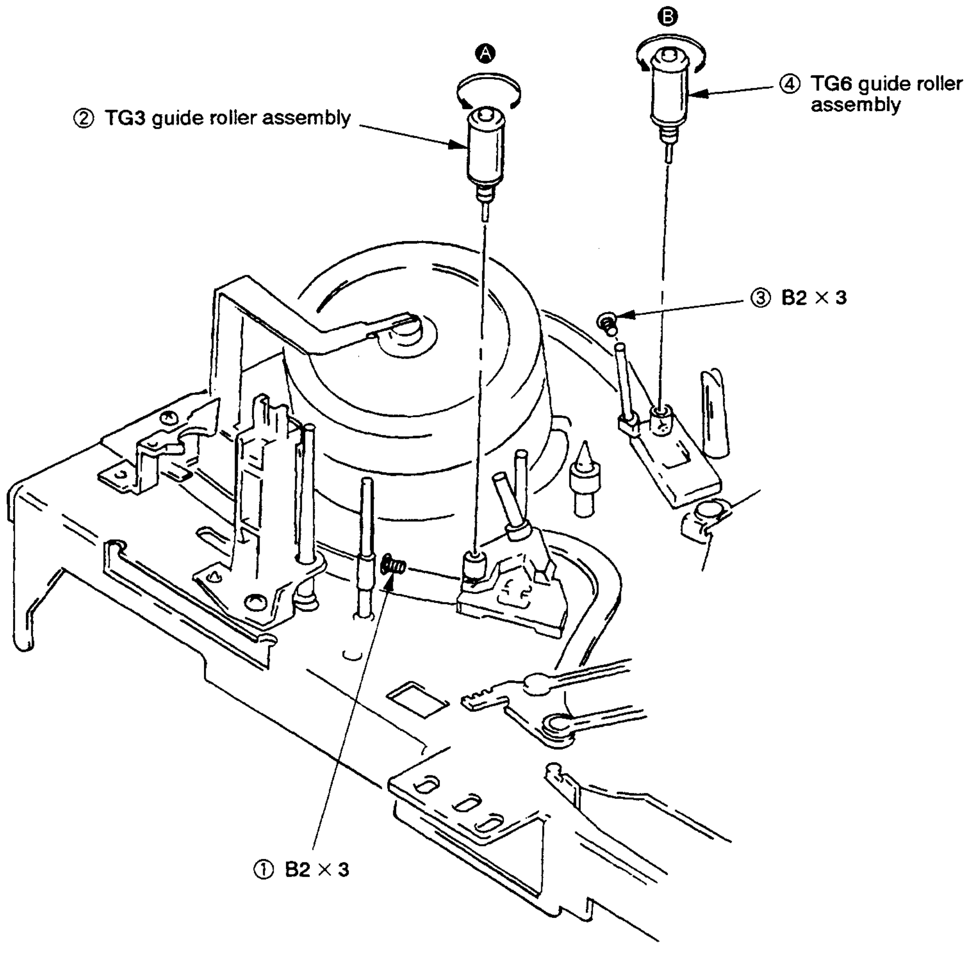
1) Loosen screw ① and pull out. TG3 guide roller assembly ② by turning it in the arrow Ⓐ direction.
2) Loosen screw ③ and pull out TG6 guide roller assembly ④ by turning it in the arrow Ⓑ direction.

[Note on Mounting]

- Keep clean the surface contacts tape of TG3 and TG6 guide roller assemblies ②, ④.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.



Ⓑ
Ⓐ
④ TG6 guide roller assembly
② TG3 guide roller assembly
③ B2 × 3
① B2 × 3

Fig. 3-8

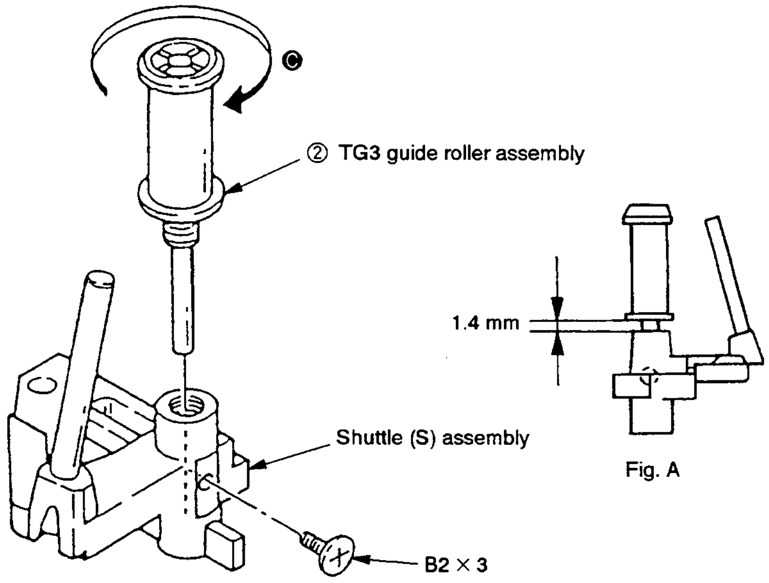

Ⓒ
② TG3 guide roller assembly
1.4 mm
Shuttle (S) assembly
Fig. A
B2 × 3

Fig. 3-9

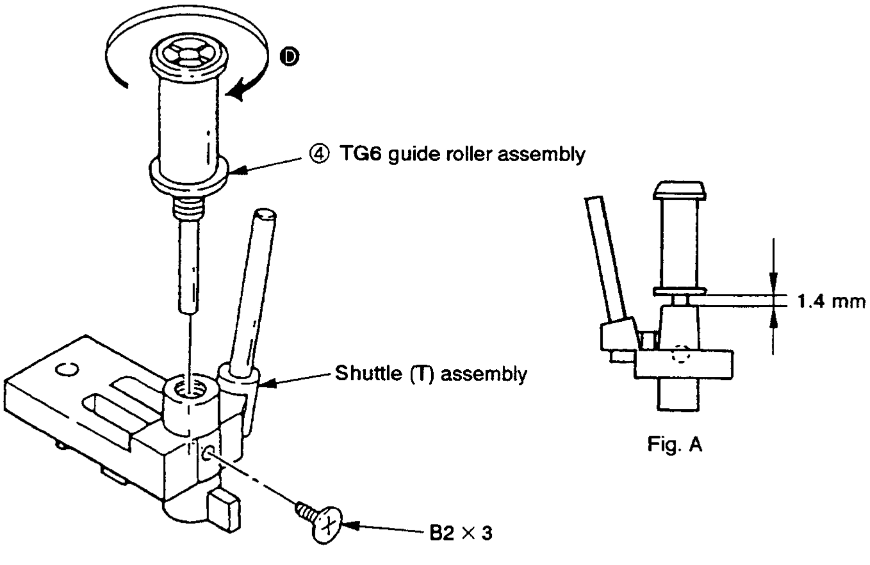

Ⓓ
④ TG6 guide roller assembly
1.4 mm
Shuttle (T) assembly
Fig. A
B2 × 3

Fig. 3-10

3-9. CAPSTAN MOTOR (Fig. 3-11)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove screws ① to pull out capstan motor ②.

[Note on Mounting]

- Keep clean the surface contacts tape of capstan motor ②.
- On tightening screws ①, first tighten screw A temporarily, next tighten screws in the order B to C to A.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

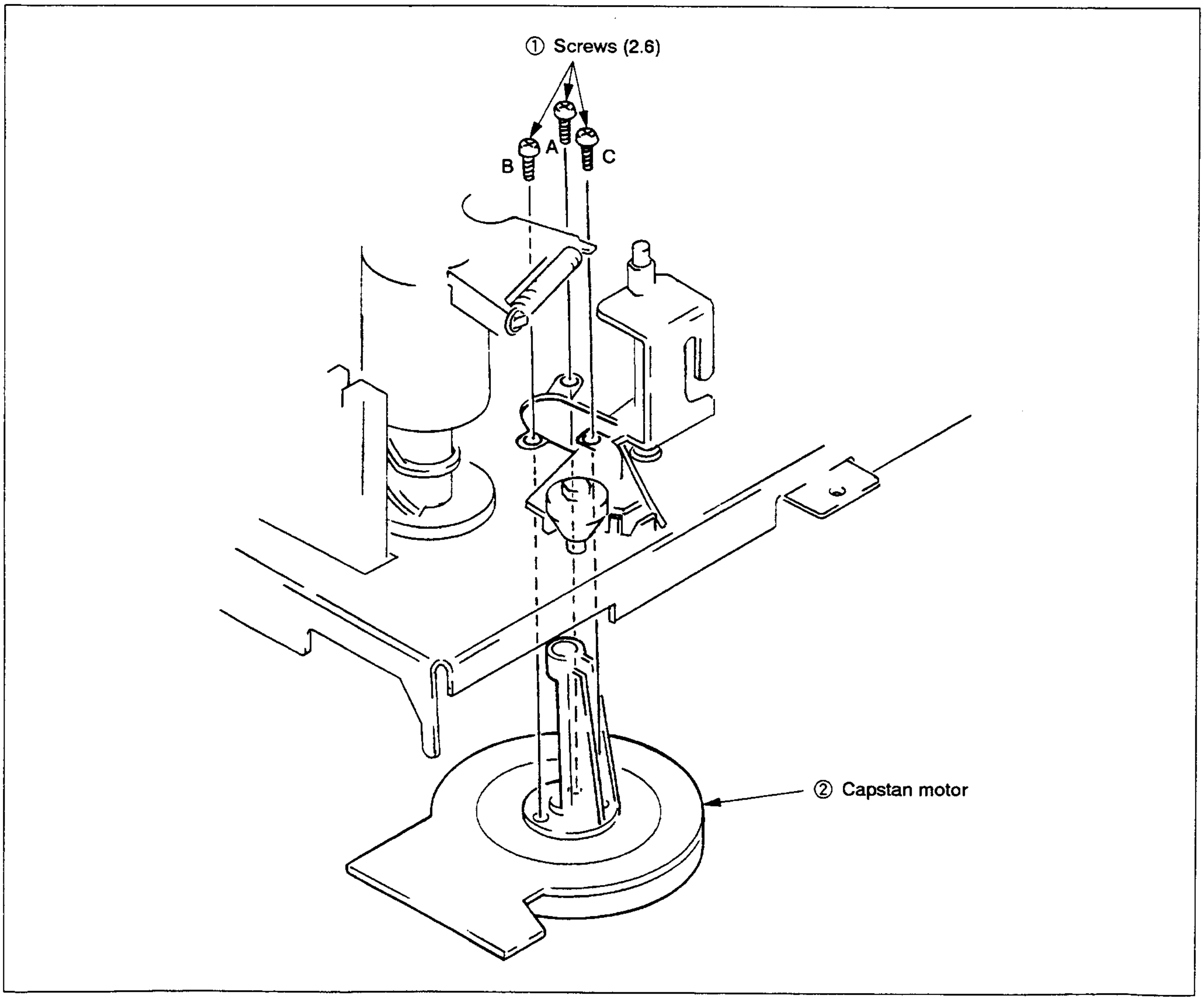


Fig. 3-11

3-10. MAIN BRAKE ASSEMBLIES S AND T (Fig. 3-12)

1) Remove tension spring ①.
2) Remove stopper washer (2) ② to remove neutrality arm ③.
3) Remove pendulum compulsion arm ④ and tension coil spring ⑤.
4) Remove stopper washer (2) ⑥ to remove main brake S assembly ⑦.
5) Remove stopper washer (2) ⑧ to remove main brake T assembly ⑨.

[Note on Mounting]

- Don't touch brake shoes Ⓐ and Ⓑ with bare hand.
- Apply FLOIL FG-055G (Jig Ref. No. J-12) to ☆ marked portions.

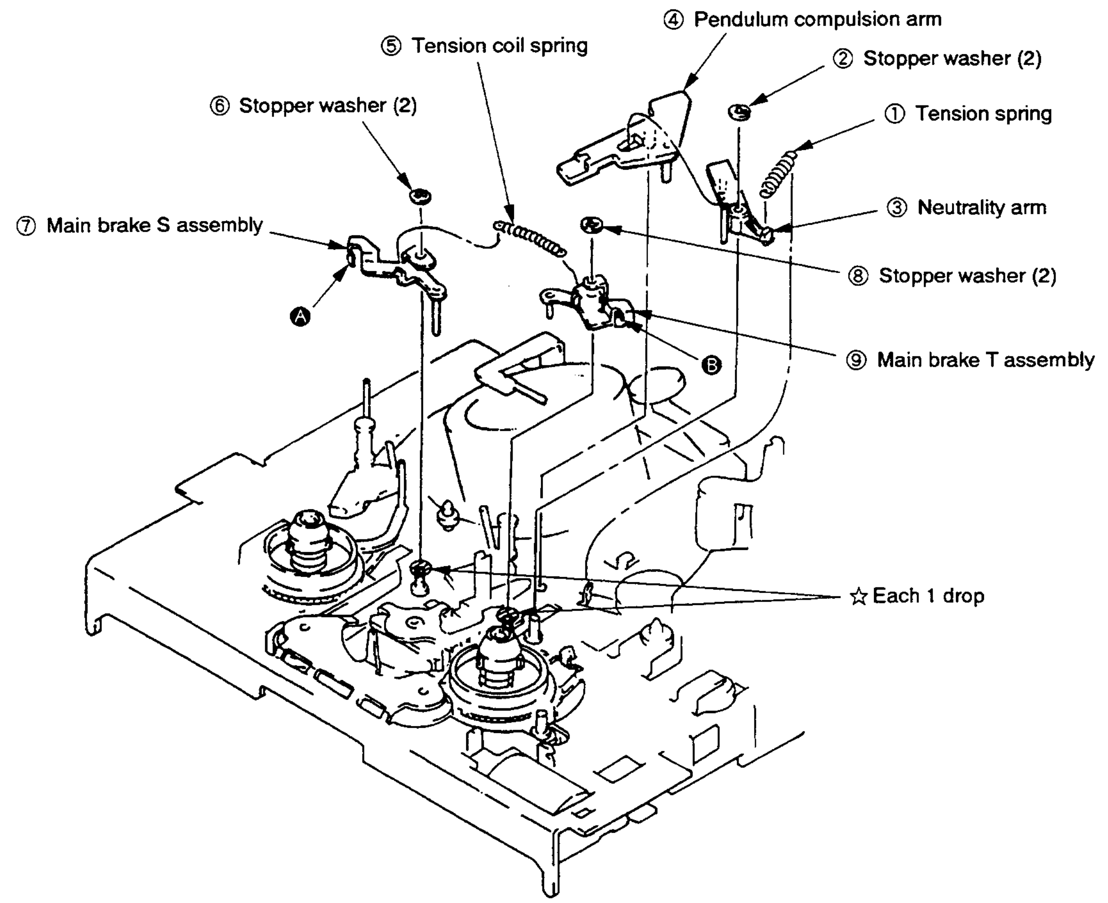

④ Pendulum compulsion arm
⑤ Tension coil spring
② Stopper washer (2)
⑥ Stopper washer (2)
① Tension spring
③ Neutrality arm
⑦ Main brake S assembly
⑧ Stopper washer (2)
Ⓐ
Ⓑ
⑨ Main brake T assembly
☆Each 1 drop

Fig. 3-12

3-11. SOFT BRAKE T ASSEMBLY (Fig. 3-13)

1) Remove pinch press block assembly. (Refer to 3-6.)
2) Remove lid opener ① carefully not to damage claw Ⓐ.
3) Remove tension spring ② from side Ⓑ to pull out soft brake T assembly ③.

[Note on Mounting]

- Don't touch brake shoes Ⓒ with bare hand.

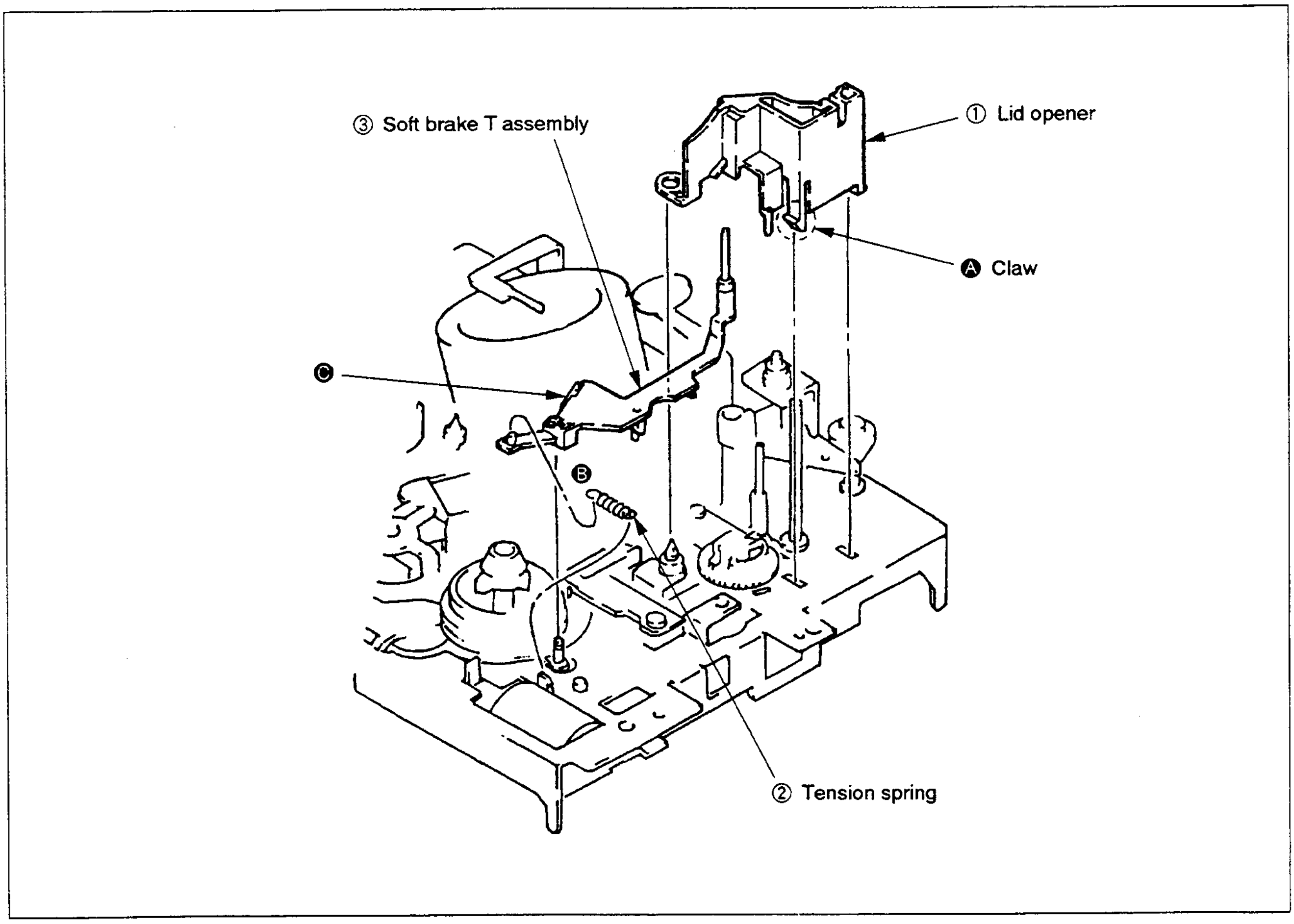

③ Soft brake T assembly
① Lid opener
Ⓐ Claw
Ⓒ
Ⓑ
② Tension spring

Fig. 3-13

3-12. RVS BRAKE ARM ASSEMBLY, REEL TABLE (T) ASSEMBLY (Fig. 3-14)

1) Remove main brake T assembly. (Refer to 3-10.)
2) Remove soft brake T assembly. (Refer to 3-11.)
3) Remove tension coil spring ① in the order 🅐 to 🅑.
4) Remove RVS brake arm assembly ②.
5) Remove stopper washer (2) ③ to pull out reel table (T) assembly ④.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion before mounting reel table (T) assembly ④. (Fig. A)
- Don't touch the hatched portion on reel table (T) assembly ④ and brake shoe 🅒 of RVS brake arm assembly ② with bare hand.

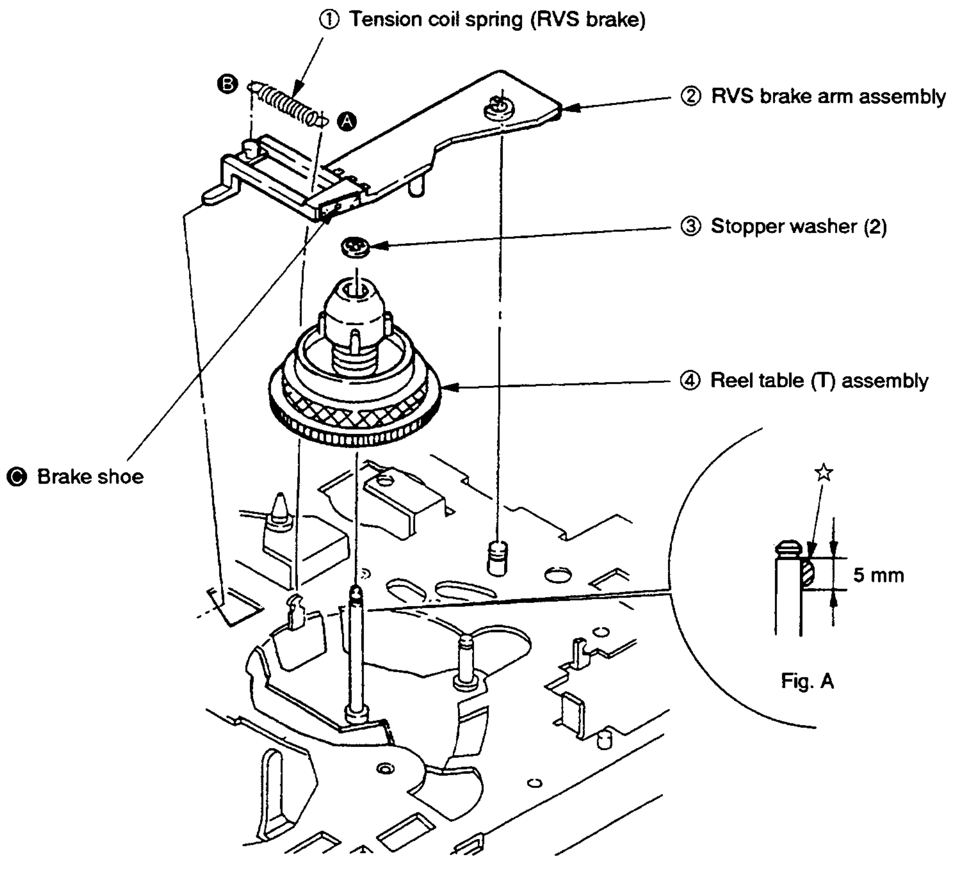

① Tension coil spring (RVS brake)
🅑
🅐
② RVS brake arm assembly
③ Stopper washer (2)
④ Reel table (T) assembly
🅒 Brake shoe
☆
5 mm
Fig. A

Fig. 3-14

3-13. TG8 ASSEMBLY (Fig. 3-15)

1) Remove TG8 retainer ① to pull out TG8 assembly ②.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portion.
- Keep clean the surface contacts tape of TG8 assembly ②.
- Be careful not to change the shape of TG8 retainer ①.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

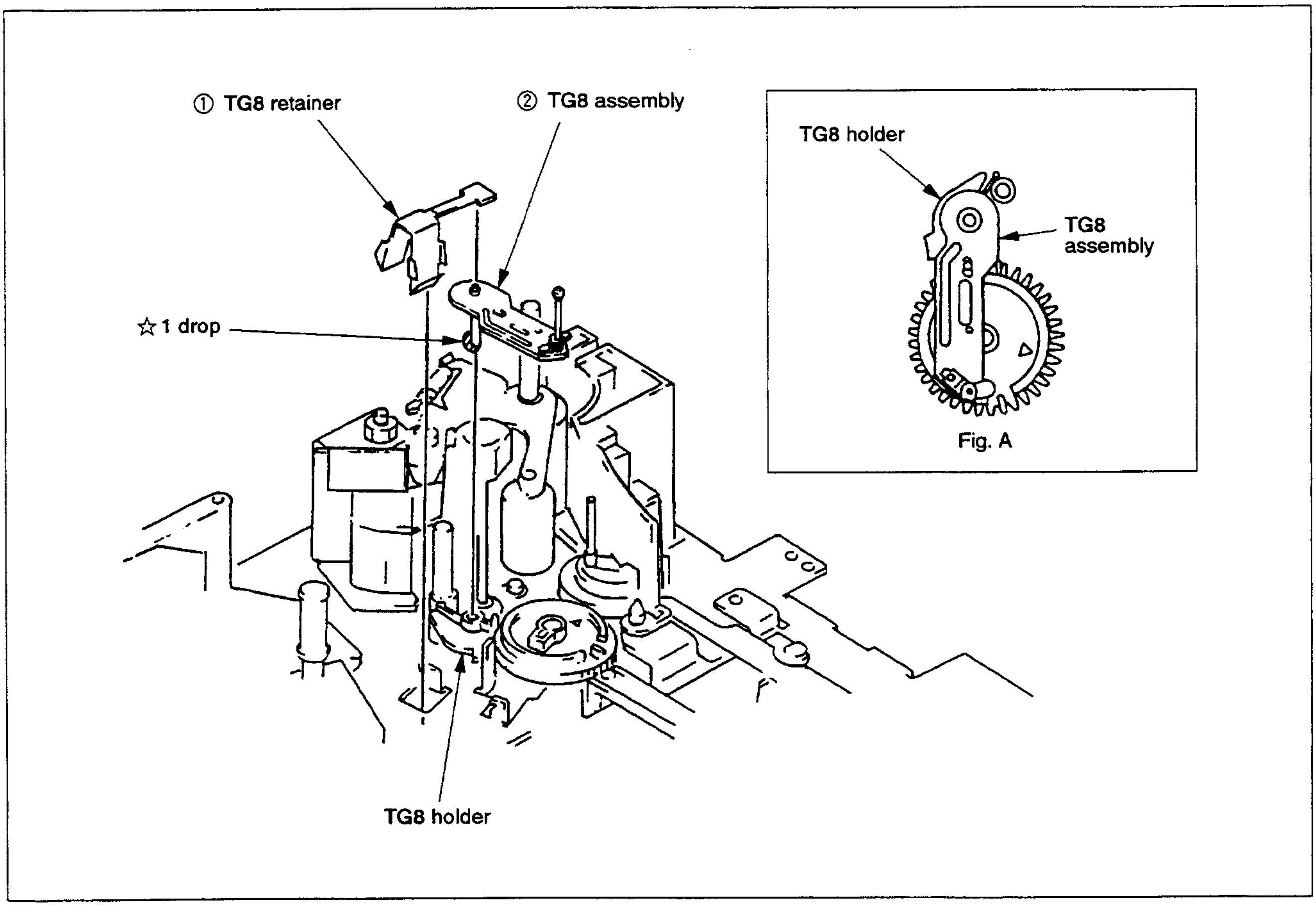

① TG8 retainer
② TG8 assembly
☆1 drop
TG8 holder
TG8 holder
TG8 assembly
Fig. A

Fig. 3-15

3-14. TG8 HOLDER (Fig. 3-16)

1) Remove TG8 assembly. (Refer to 3-13)
2) Pull out TG8 holder ①.

[Note on Mounting]

- Be careful about the direction of TG8 holder ①. (🅐 of Fig. A)

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

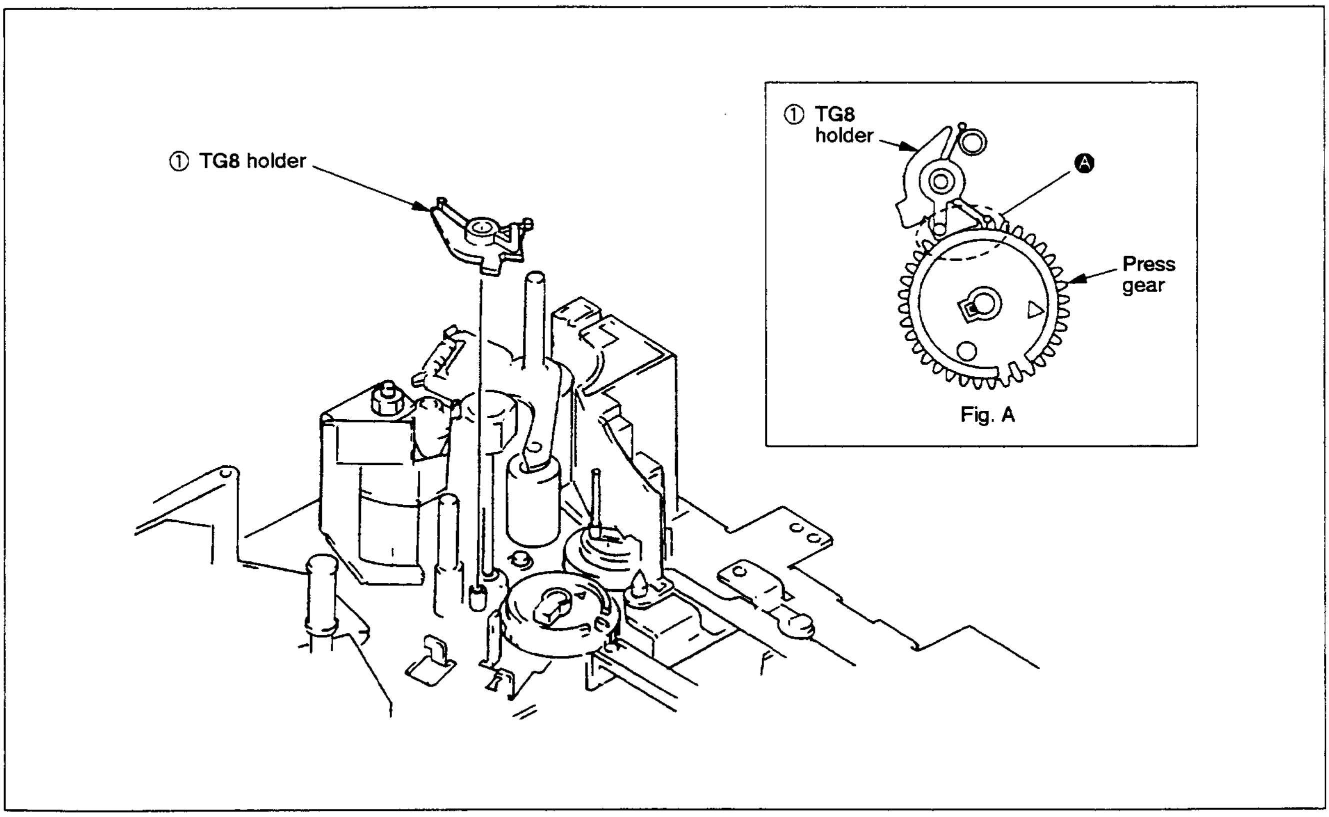

① TG8 holder
① TG8 holder
🅐
Press gear

Fig. A

Fig. 3-16

3-15. TG8 AND PRESS GEARS (Fig. 3-17)

1) Remove pinch press block assembly. (Refer to 3-6.)
2) Remove soft brake T assembly. (Refer to 3-11.)
3) Remove TG8 assembly. (Refer to 3-13.)
4) Remove TG8 holder. (Refer to 3-14.)
5) Pull out TG8 gear ① or press gear ②.

[Note on Mounting]

- Adjust the holes on gears to the holes on chassis. (Fig. A)
- Adjust the arrows carved on gears each other. (Fig. A)

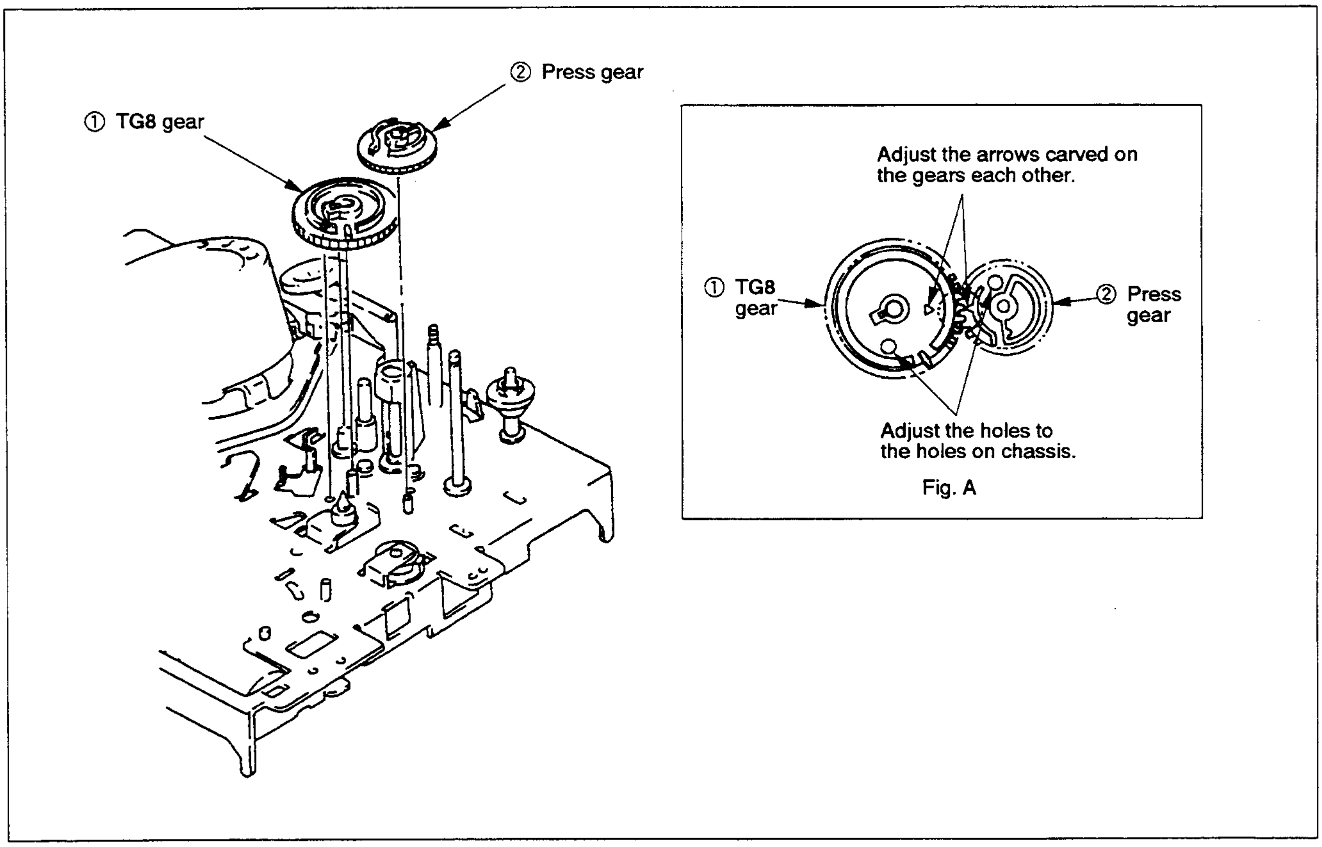

② Press gear
① TG8 gear
Adjust the arrows carved on the gears each other.
① TG8 gear
② Press gear
Adjust the holes to the holes on chassis.
Fig. A

Fig. 3-17

3-16. CAM MOTOR CHASSIS BLOCK ASSEMBLY, UPPER/LOWER COMMUNICATION GEAR (Fig. 3-18)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove screws ① to remove cam motor chassis assembly ②.
4) Pull out upper/lower communication gear ③.

[Note on Mounting]

- First, check main slider ④ slides fully in the arrow 🅔 direction.
- Set rotary encoder switch position to "E" seen from the window of cam motor chassis. (Fig. A)
- Tighten screws ① in the order 🅐 to 🅑 to 🅒 to 🅓.

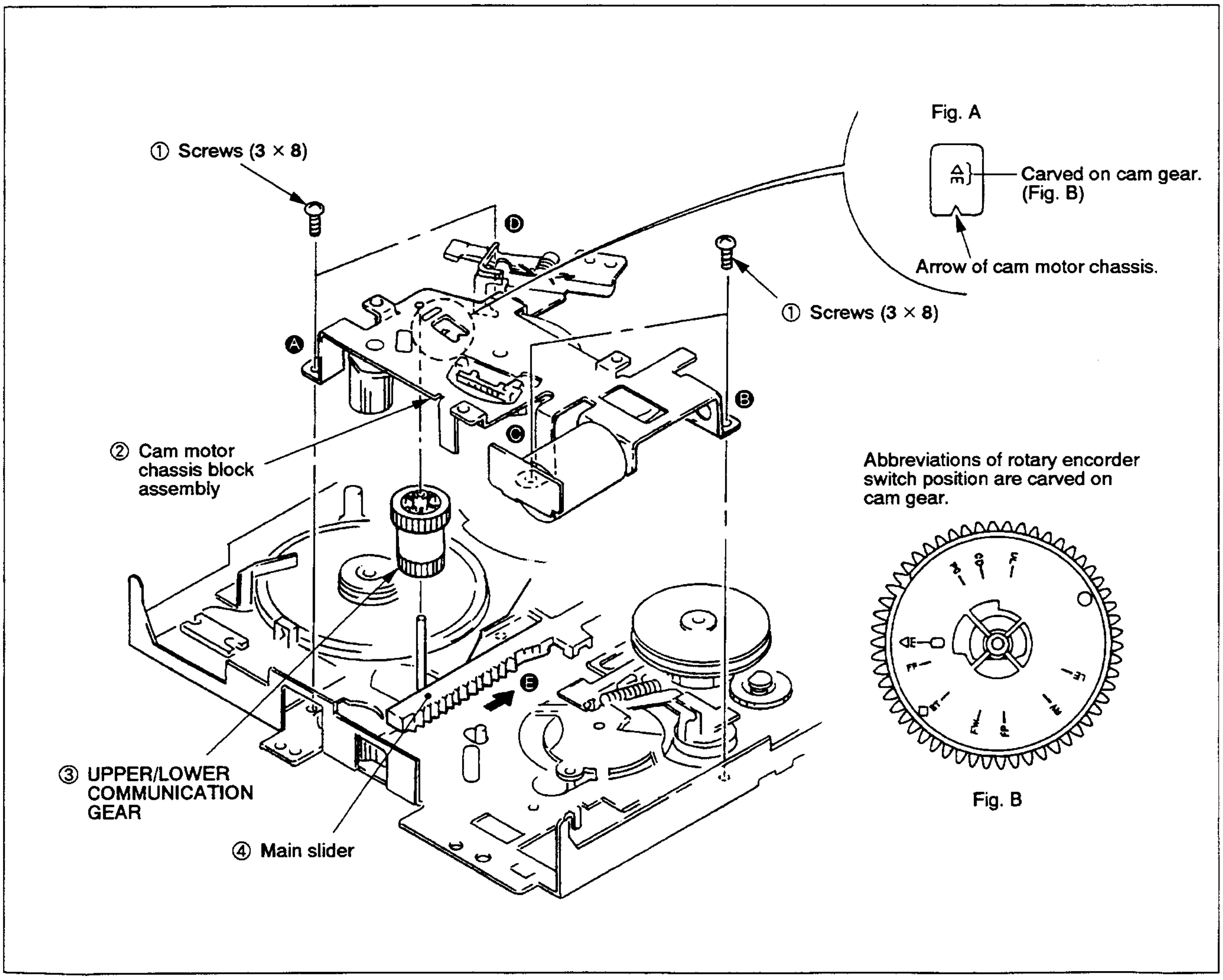

① Screws (3 × 8)
🅓
① Screws (3 × 8)
🅐
🅑
🅒
② Cam motor chassis block assembly
🅔
③ UPPER/LOWER COMMUNICATION GEAR
④ Main slider
Fig. A
Carved on cam gear. (Fig. B)
Arrow of cam motor chassis.
Abbreviations of rotary encorder switch position are carved on cam gear.
Fig. B

Fig. 3-18

3-17. ROTARY ENCODER SWITCH (Fig. 3-19)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly (Refer to 3-15.) and turn upside on the bottom.
4) Remove stopper washer (2) ① to pull out worm wheel ②.
5) Remove stopper washer (2) ③ to pull out cam gear ④.
6) Pull out FL driving gear ⑤ and rotary encoder switch ⑥.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions. (Fig. 3-19, A)
- Adjust the hole 🅐 to the hole on cam motor chassis. (Fig. B)
- Adjust the holes 🅑 and 🅒 to the hole on cam motor chassis. (Fig. C)

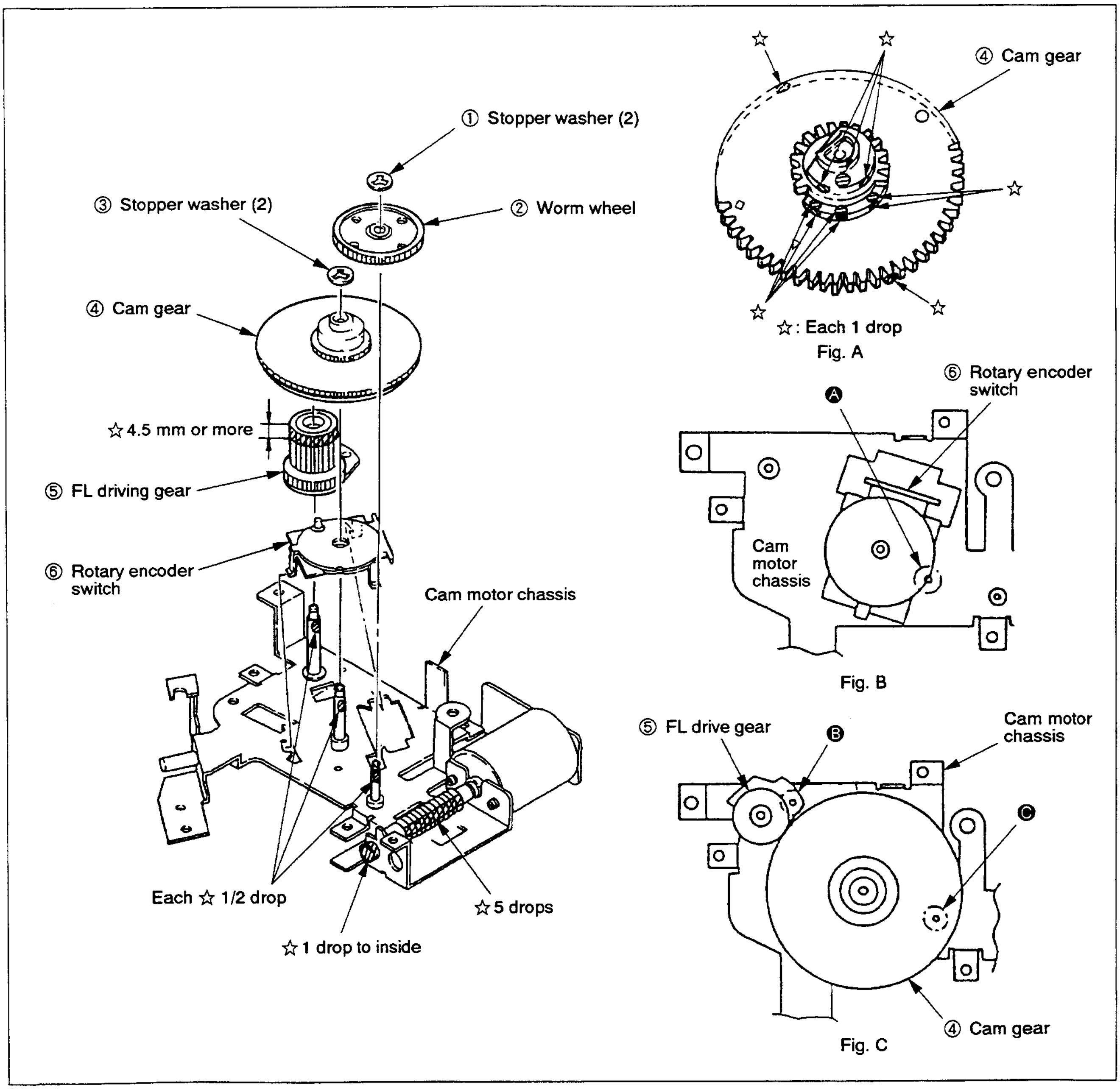

① Stopper washer (2)
③ Stopper washer (2)
② Worm wheel
④ Cam gear
☆4.5 mm or more
⑤ FL driving gear
⑥ Rotary encoder switch
Cam motor chassis
Each ☆ 1/2 drop
☆5 drops
☆1 drop to inside
☆
④ Cam gear
☆: Each 1 drop
Fig. A
⑥ Rotary encoder switch
🅐
Cam motor chassis
Fig. B
⑤ FL drive gear
🅑
Cam motor chassis
🅒
④ Cam gear
Fig. C

Fig. 3-19

3-18. MAIN SLIDER (Fig. 3-20)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove screw ① to remove retainer ②.
5) Pull out main slider ③.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) as shown in Fig. A.
- At the last, slide main slider fully in the arrow 🅐 direction.

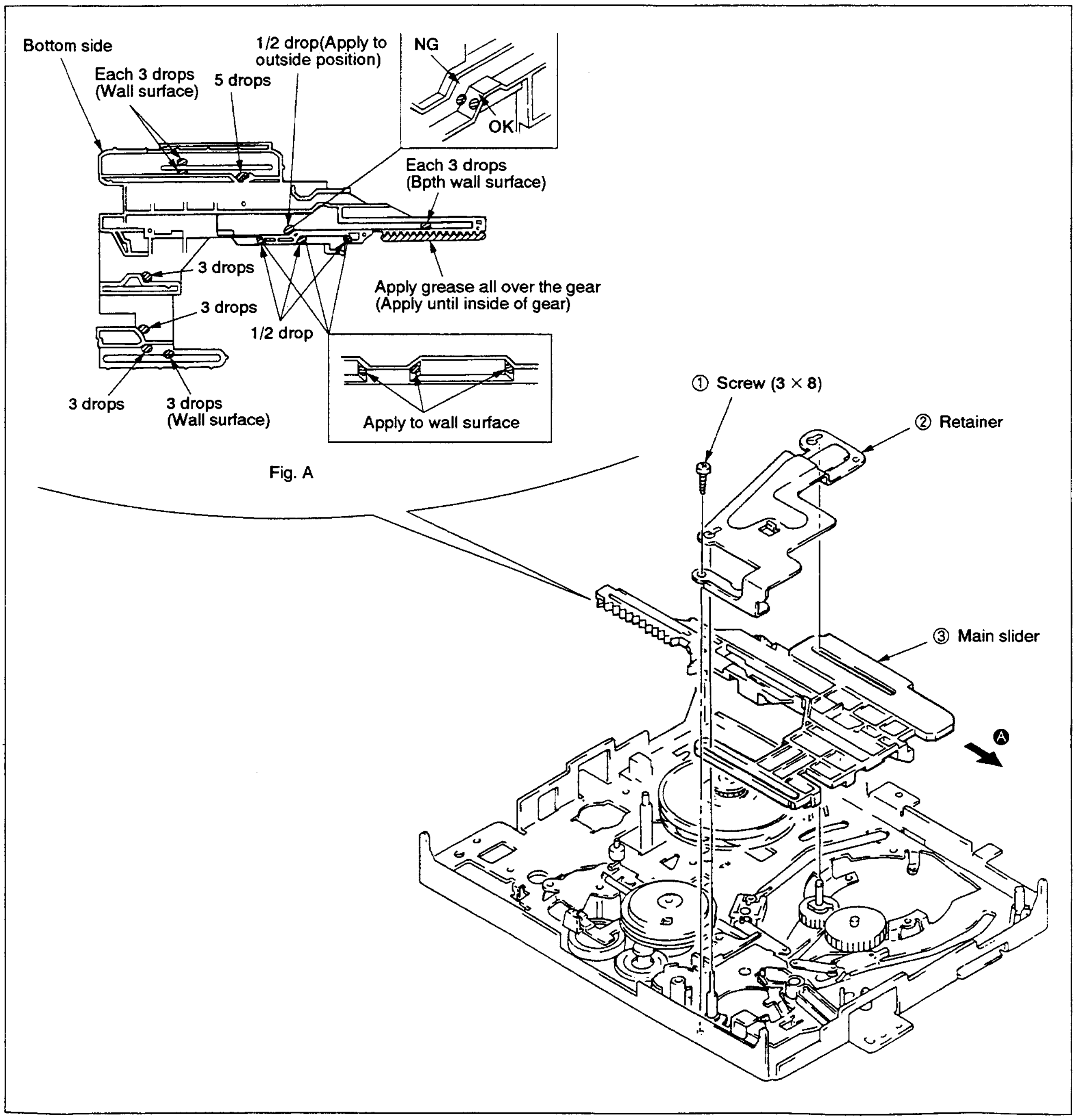

Bottom side
Each 3 drops (Wall surface)
5 drops
1/2 drop(Apply to outside position)
NG
OK
Each 3 drops (Bpth wall surface)
Apply grease all over the gear (Apply until inside of gear)
3 drops
3 drops
1/2 drop
3 drops
3 drops (Wall surface)
Apply to wall surface
Fig. A
① Screw (3 × 8)
② Retainer
③ Main slider
🅐

Fig. 3-20

3-19. SHUTTLE T BLOCK AND LOADING GEAR T BLOCK ASSEMBLIES (Fig. 3-21)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove screw ① to remove loading leaf (T) spring ② and shuttle T block assembly ③.
6) Pull out loading gear T block assembly ④.

[Note on Mounting]

- Adjust the phase 🅐 between loading gear (T) and loading gear (S). (Fig. A)
- Keep clean the surface contacts tape of shuttle T block assembly ③.

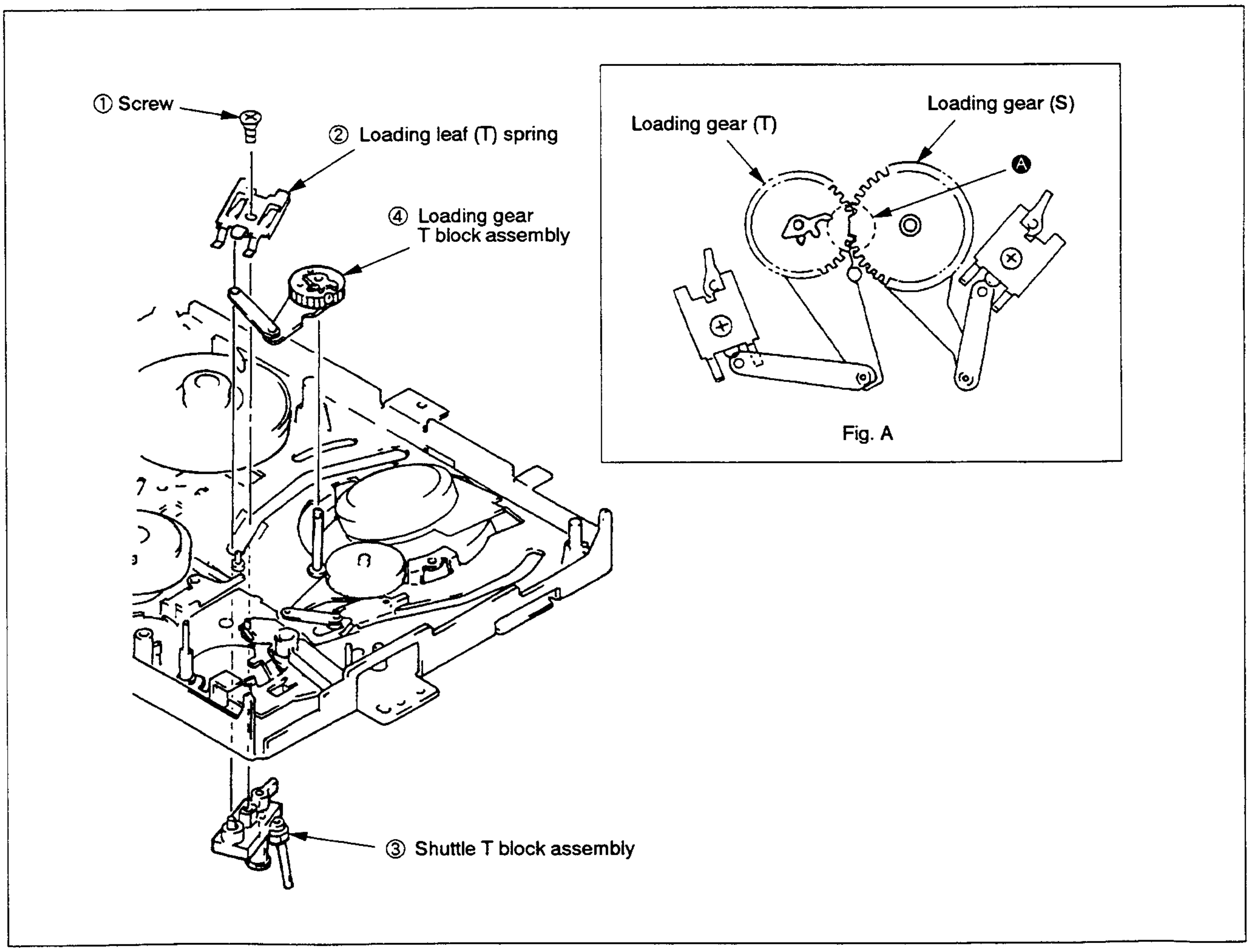

① Screw
② Loading leaf (T) spring
④ Loading gear T block assembly
③ Shuttle T block assembly
Loading gear (T)
Loading gear (S)
🅐

Fig. A

Fig. 3-21

3-20. SHUTTLE S BLOCK AND LOADING GEAR S BLOCK ASSEMBLIES (Fig. 3-22)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-15.)
5) Remove screw ① to remove loading leaf (S) spring ② and shuttle S block assembly ③.
6) Pull out loading gear S block assembly ④.

[Note on Mounting]

- Adjust the phase Ⓐ between loading gear (S) and loading gear (S). (Fig. A)
- Keep clean the surface contacts tape of shuttle S block assembly ③.

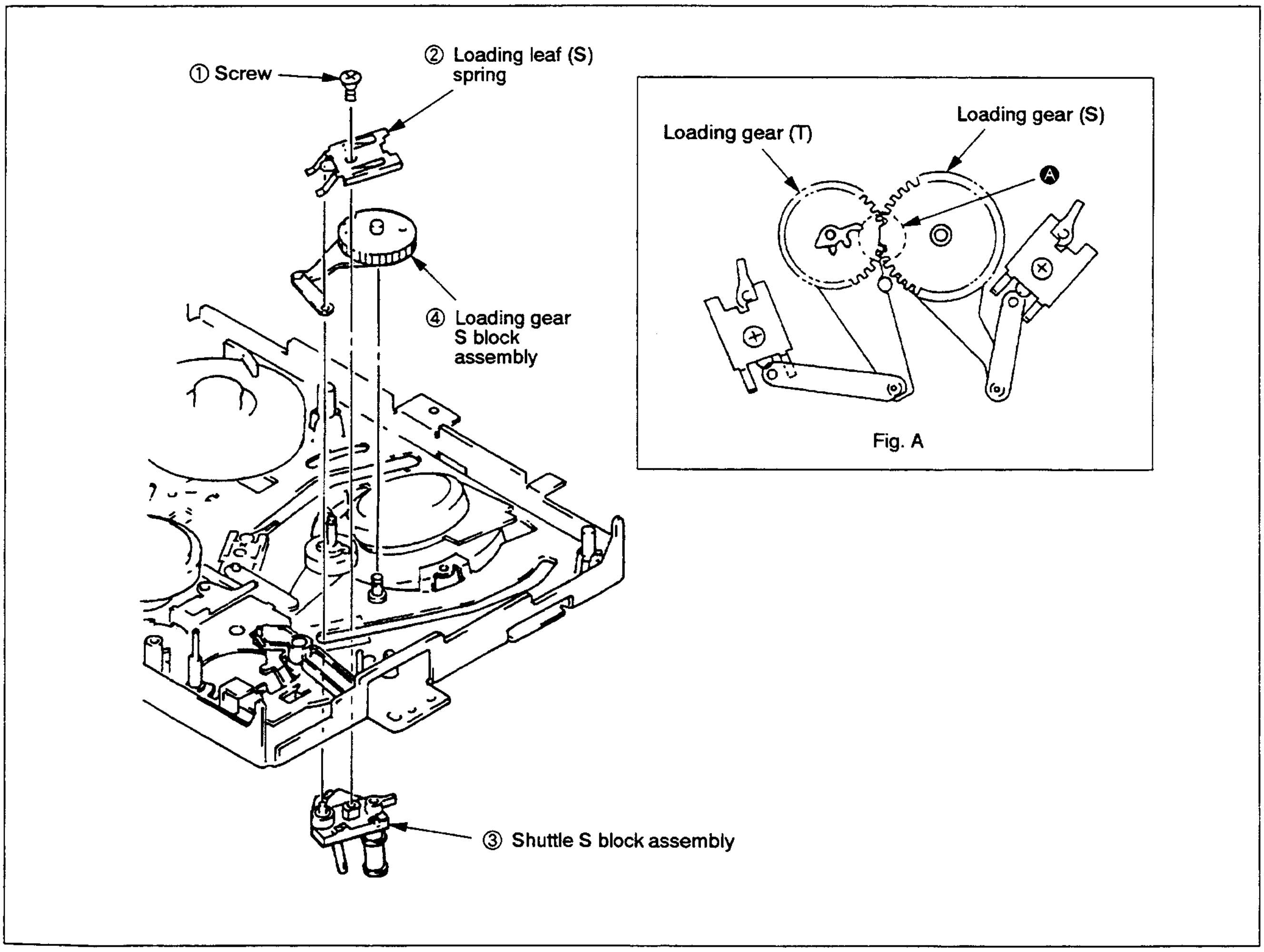

① Screw
② Loading leaf (S) spring
④ Loading gear S block assembly
③ Shuttle S block assembly
Loading gear (T)
Loading gear (S)
Ⓐ
Fig. A

Fig. 3-22

3-21. REEL TABLE (S) ASSEMBLY (Fig. 3-23)

1) Remove tension spring ① from the chassis side.
2) Remove stopper washer (2) ② to pull out soft brake (S) ③.
3) Move TG1 band ④ over the reel table.
4) Remove stopper washer (2) ⑤.
5) While pressing main brake S assembly ⑥, pull out reel table (S) assembly ⑦.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion before mounting reel table (S) assembly ⑥. (Fig. A)
- Don't touch the hatched portion on reel table (S) assembly ⑥ with bare hand.

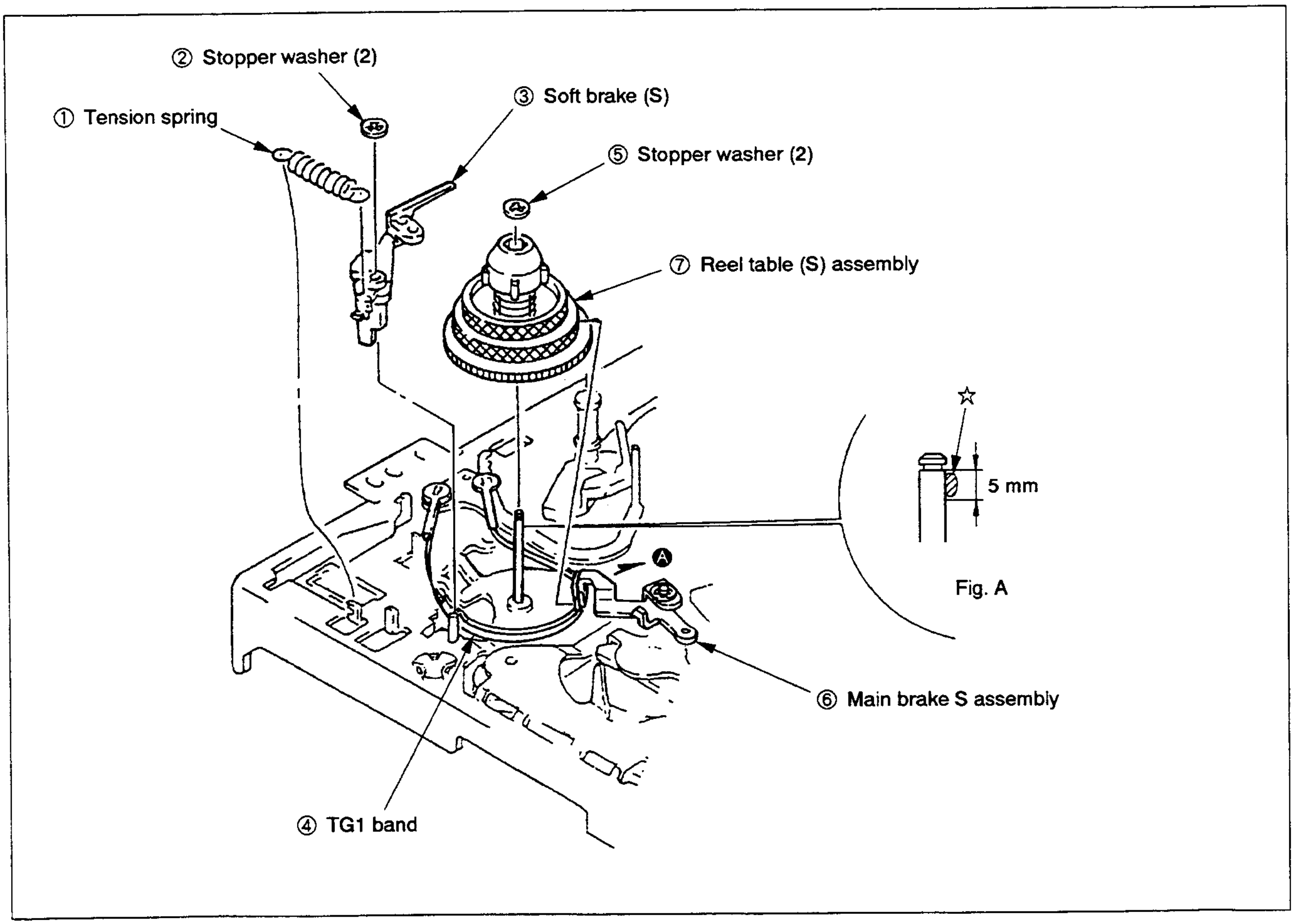

② Stopper washer (2)
① Tension spring
③ Soft brake (S)
⑤ Stopper washer (2)
⑦ Reel table (S) assembly
☆
5 mm
Fig. A
A
⑥ Main brake S assembly
④ TG1 band

Fig. 3-23

3-22. TG1 ASSEMBLY (Fig. 3-24)

1) Set the mechanism to the loading-end condition referring to 1-1. (Cam gear indicates "LE". (Refer to Fig. A and B of Fig. 3-18.))
2) Remove tension spring ① in the order 🅐 to 🅑.
3) Remove stopper washer (2) ② to pull out TG1 assembly ③.

[Note on Mounting]

- Apply one drop of Diamond Oil NT-68 (Jig Ref. No. J-13) to ☆ marked portion.
- Keep clean the felt side of TG1 assembly.

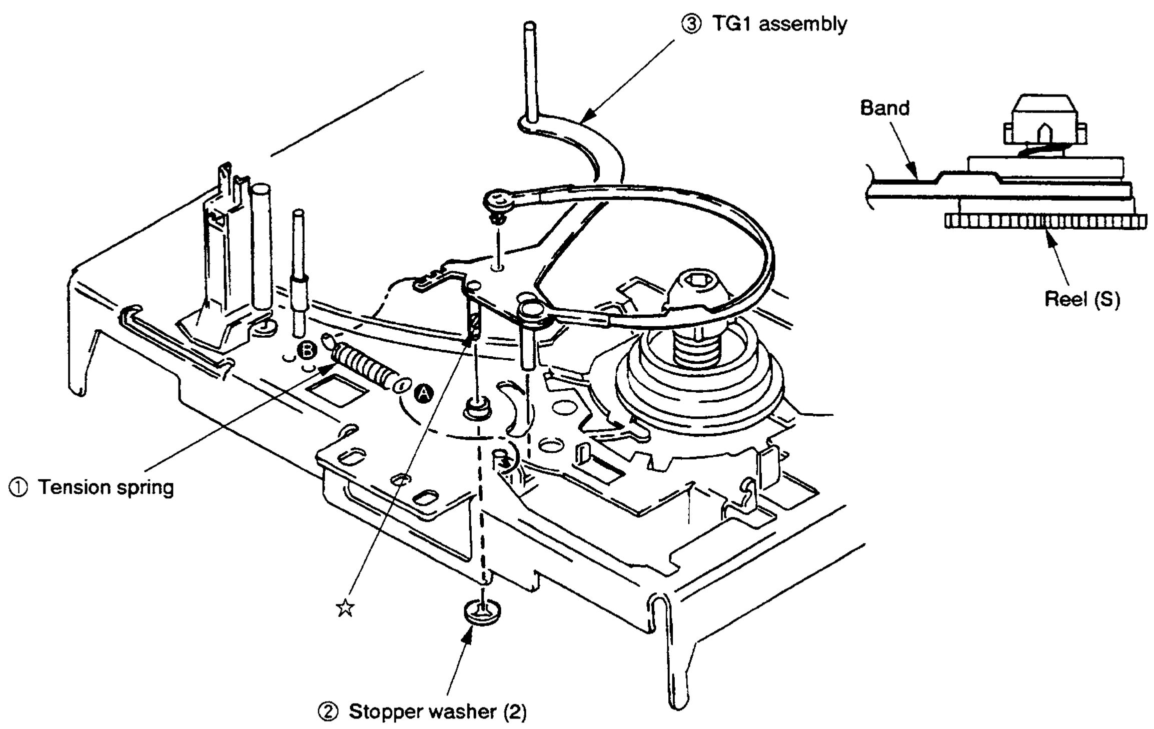

③ TG1 assembly
Band
Reel (S)
🅑
🅐
① Tension spring
☆
② Stopper washer (2)

Fig. 3-24

3-23. S WINDING BLOCK ASSEMBLY (Fig. 3-25)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove stopper washer (2) ① to pull out S winding block assembly ②.
6) Remove torsion spring ③.

[Note on Mounting]

- At the last, hang torsion spring ② to the position Ⓐ.
- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions.

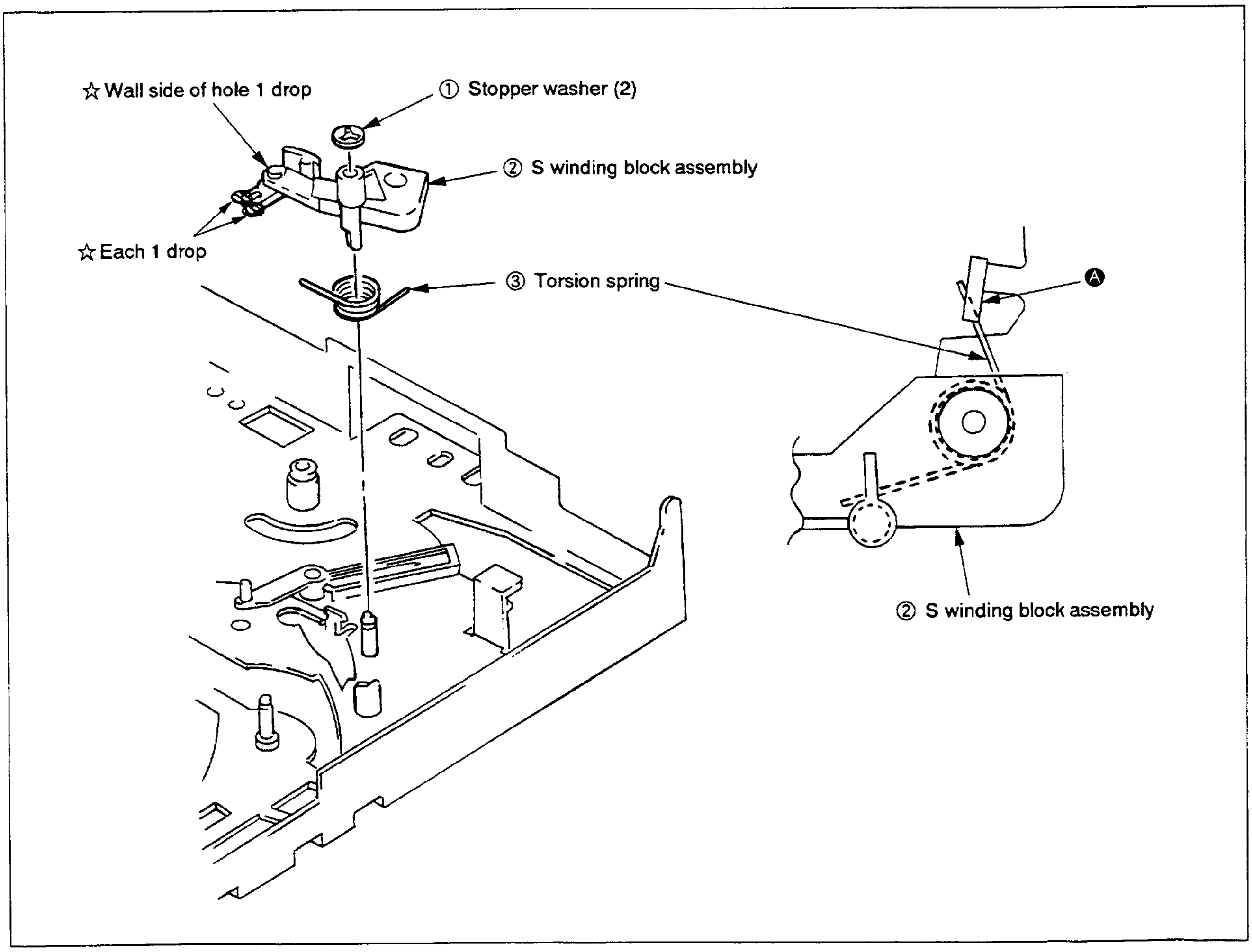

☆Wall side of hole 1 drop
① Stopper washer (2)
② S winding block assembly
☆Each 1 drop
③ Torsion spring
Ⓐ
② S winding block assembly

Fig. 3-25

3-24. TRIGGER LEVER AND RKB BLOCK ASSEMBLIES (Fig. 3-26)

1) Remove timing belt. (Refer to 3-3.)
2) Remove CAP brake assembly. (Refer to 3-4.)
3) Remove cam motor chassis block assembly. (Refer to 3-16.)
4) Remove main slider. (Refer to 3-18.)
5) Remove tension spring ① in the order 🅐 to 🅑 to remove trigger lever assembly ②.
6) Remove screws (3 × 8) ③ to remove RKB block assembly ④.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portions on trigger lever assembly. (Fig. A)

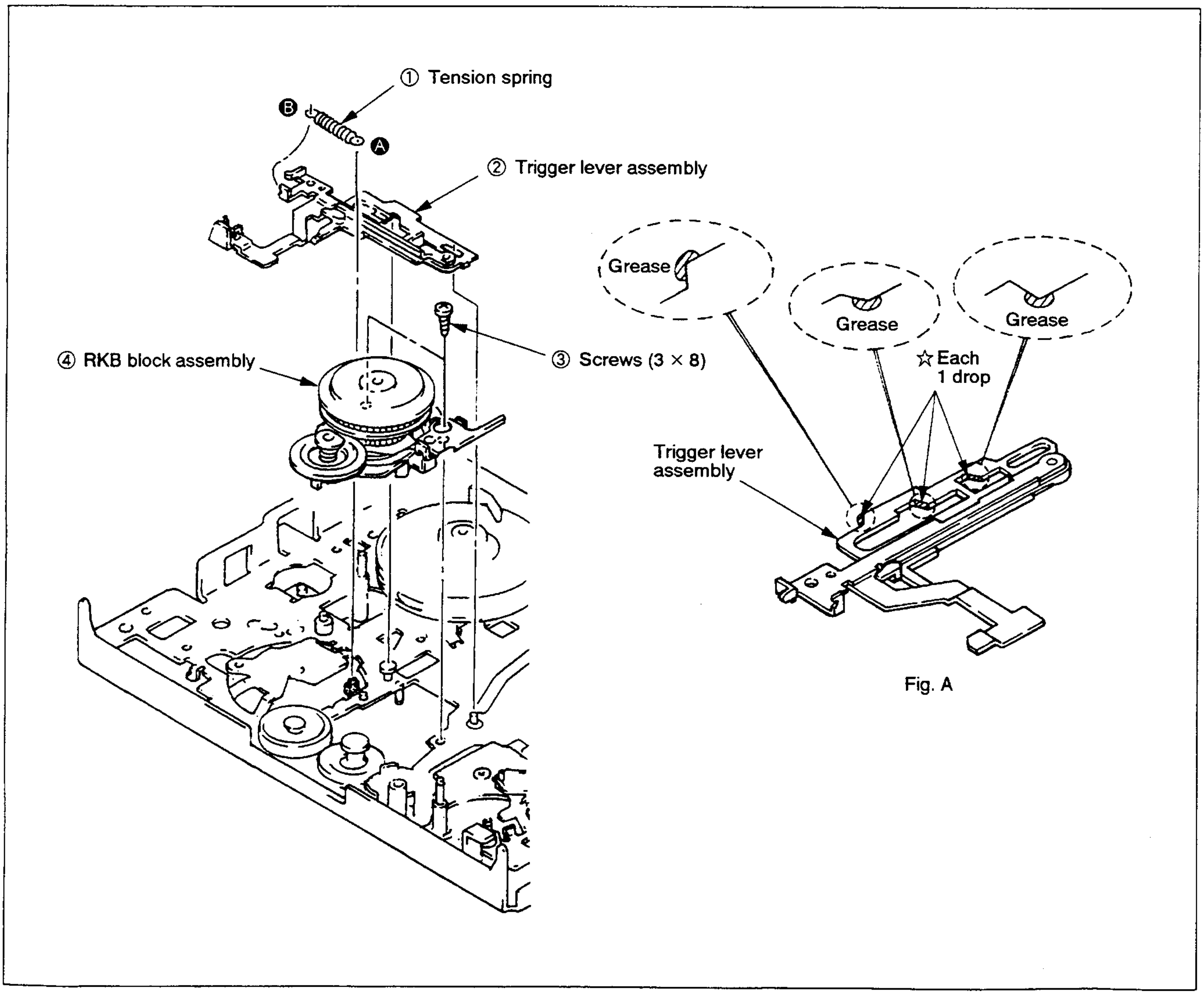

① Tension spring
🅑
🅐
② Trigger lever assembly
④ RKB block assembly
③ Screws (3 × 8)
Grease
Grease
Grease
☆Each 1 drop
Trigger lever assembly
Fig. A

Fig. 3-26

4. ADJUSTMENT

4-1. TAPE PATH ADJUSTMENT

The "Tape path" refers to the route of the tape from the supply reel disk to the take-up reel disc via the video heads.

Each component part of the tape transport system particularly the surface of parts which make direct contact with the tape must always be kept clean, free of dust, oil, scratches and so forth.

The tape path system is factory preadjusted, when parts of the tape transport system are replaced, be sure to make the required adjustments as precisely as possible in order to ensure stable tape transport.

4-1-1. TENSION REGULATOR (TG1) POSITION/ TENSION ADJUSTMENT (Fig. 4-1)

Purpose: stabilizes contact of the video head and the tape to maintain the tension of the tape so that it feeds at a constant level.

• Position adjustment

Mode	Treading is completed without a cassette loaded
Adjustment locations	Eccentric pin of TG1 band assembly

[Adjustment Method]

1) Allow the unit to go through the threading procedure without a cassette loaded.
2) Set the unit to play back, then turn the eccentric pin so that the tip of tension arm goes to the left side line carved on the mechanical chassis. (Fig. A)
3) After adjustment, go through the loading procedure once more without a cassette loaded, then check the position of the tension arm.

• Tension adjustment

Mode	Playback
Measuring instrument/tool	Torque cassete
Adjustment locations	Position for hooking the tension spring
Specified value	36 to 44 g•cm

[Adjustment Method]

1) Playback the torque cassette.
2) Check that the center value deviation reading on the torque cassette meets with the standards.
3) When the reading is higher than the standards: Move the spring toward direction Ⓐ.
When the reading is less than the standards: Move the spring toward direction Ⓑ.

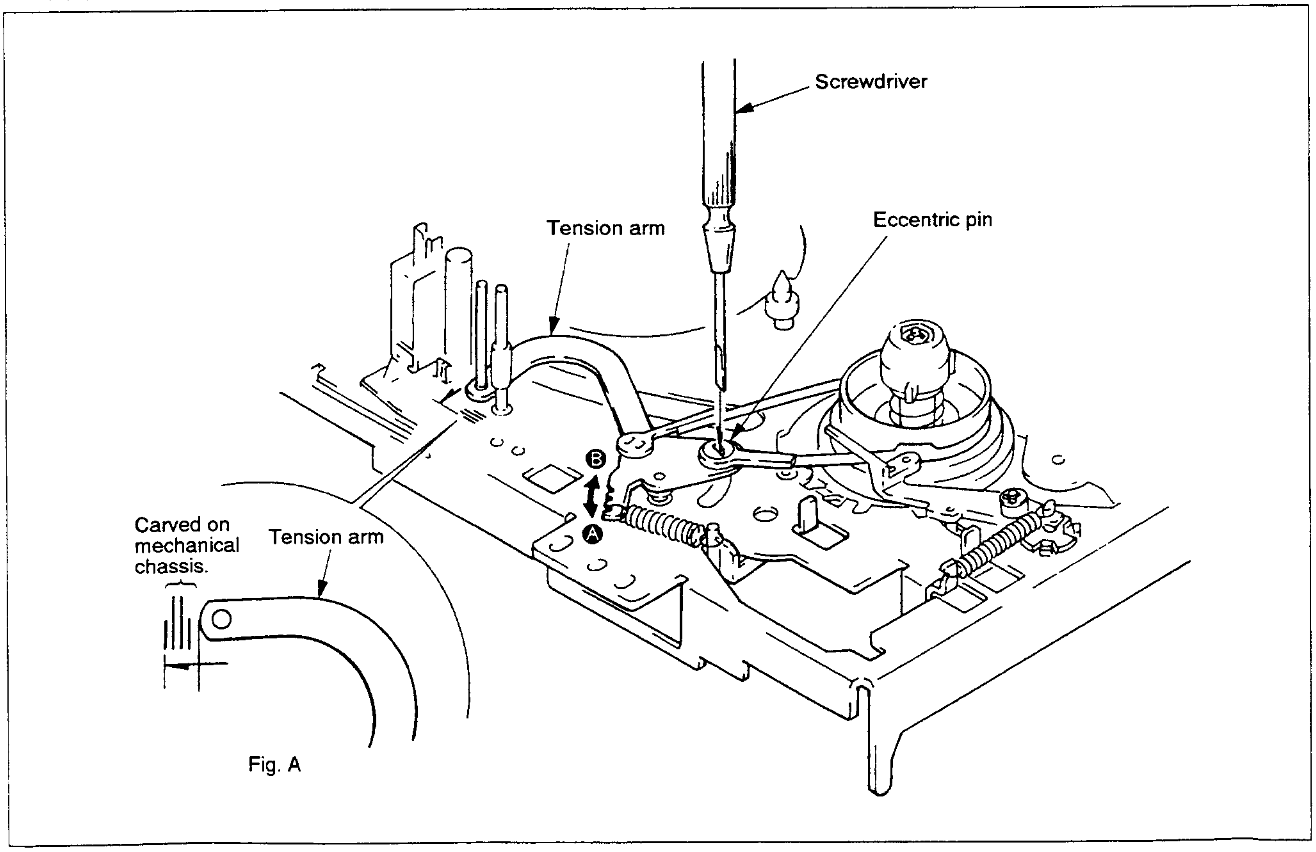


Fig. 4-1

4-1-2. TG8 GUIDE ROLLER HEIGHT ADJUSTMENT (Fig. 4-2)

Mode	Playback
Jig	Blank tape
Adjustment locations	Guide roller height adjustment screw
Specified value	0 to 0.1 mm

Procedure:

1) Set the tape, during CUE playing back, check the height from lower flange of TG7 to the running tape. (Fig. A)
2) During REV playing back, check the height from lower flange of TG7 to the running tape. (Fig. B)
3) When the difference between items 1) and 2) doesn't go to specified value, adjust by turning TG8 guide roller height adjustment screw.
4) Check the tape is creased or not between the capstan and TG8, adjust with TG8 guide roller height adjustment screw so that the tape is not creased during normal playback, CUE and REV.

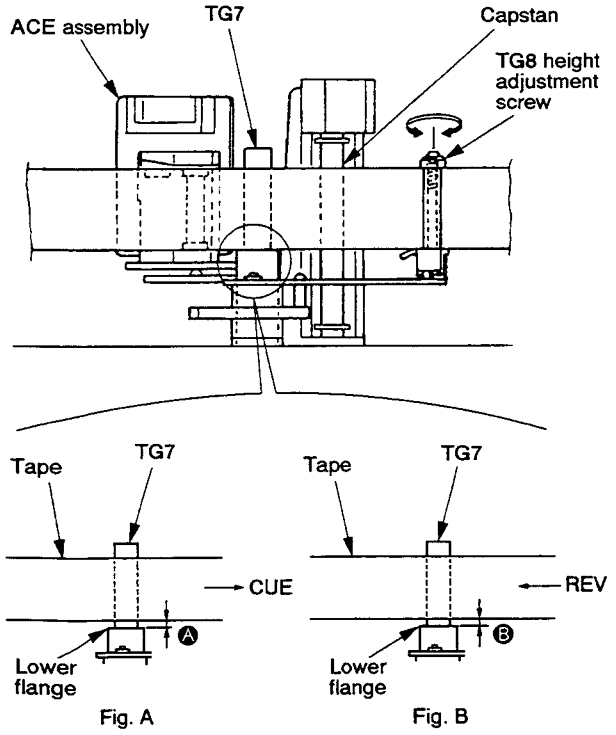

ACE assembly
TG7
Capstan
TG8 height adjustment screw
Tape
TG7
CUE
Ⓐ
Lower flange
Tape
TG7
REV
Ⓑ
Lower flange

Fig. A

Fig. B

Difference between Ⓐ and Ⓑ = 0 to 0.1 mm

Fig. 4-2

4-1-3. HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6 (Fig. 4-3)

Mode	Playback
Signal	Alignment tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller height adjuster screw

[Adjustment Method]

1) Tracking (playback): Turn off the auto tracking, then press the tracking buttons ▽ and △ simultaneously to set the tracking at the center position.
(If adjustment is made after the drum is replaced, the tracking must be set at the max. RF output position.)
2) Height adjuster screw: Even out the RF output waveforms.
3) Press the tracking buttons (playback), ▽ and △ alternately.
4) Check that RF output drops the same amount at the front and rear edges.

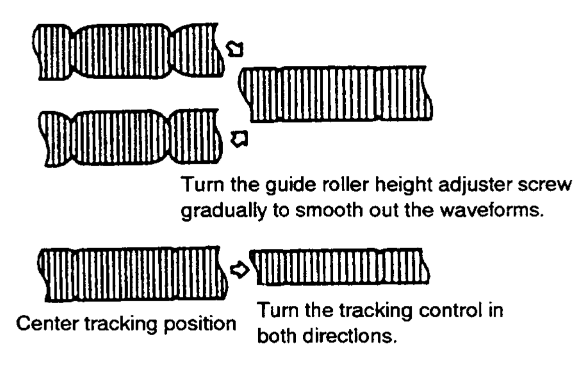

Turn the guide roller height adjuster screw gradually to smooth out the waveforms.
Center tracking position
Turn the tracking control in both directions.

Fig. 4-3

4-1-4. ACE HEAD ASSEMBLY ADJUSTMENT (ROUGH ADJUSTMENT) (Figs. 4-4 and 4-5)

Purpose: Allows the tape to make even contact with the head for recording and playback of the specified track.

Mode	Playback
Tool	Blank tape
Adjustment locations	Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Mount the ACE head assembly. At this time, adjust the height so that the height of guide flange No. 7 matches the level of the lower edge of the control head.
2) Remove the adjustment tool and load a new tape, then set the unit for playback.
3) Check that the tape does not curl or rise up noticeably near the ACE head.
4) If the tape curls up or rises noticeably, readjust the tilt adjuster screw, the azimuth adjuster screw and the height adjuster nut.
   (The height of the ACE head should be adjusted so that the lower edge of the tape is approx. 0.1 to 0.15 mm from the control head.)
5) Perform precision adjustment.

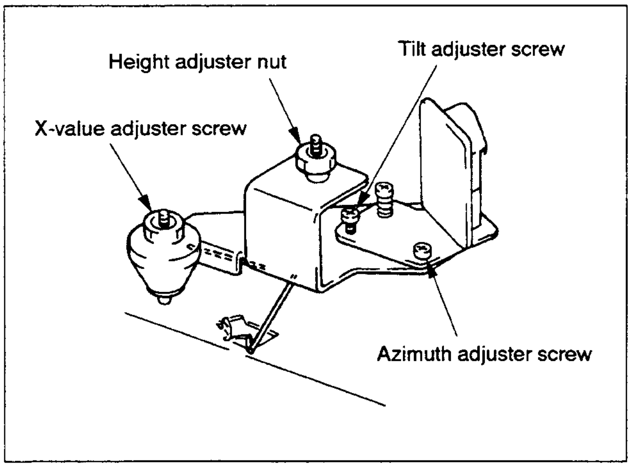

Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Azimuth adjuster screw

Fig. 4-4

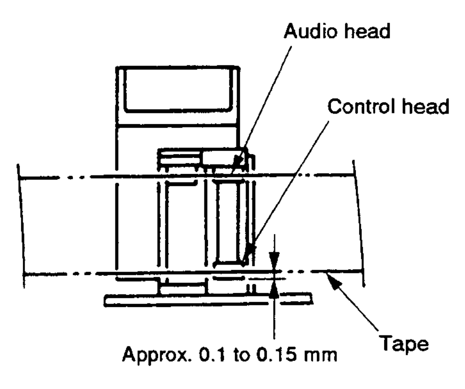

Audio head
Control head
Approx. 0.1 to 0.15 mm
Tape

Fig. 4-5

4-1-5. ACE HEAD ASSEMBLY ADJUSTMENT (PRECISION ADJUSTMENT)

Mode	Playback
Signal	Alignment tape (1kHz track)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw, Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or rise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.

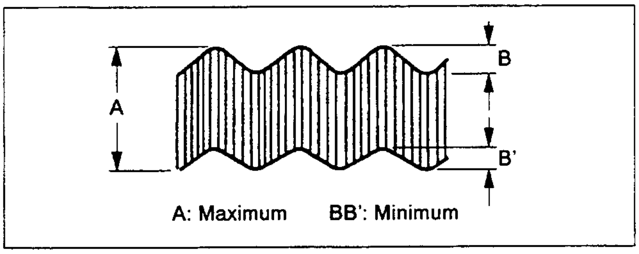

A
B
B'
A: Maximum
BB': Minimum

Fig. 4-6

4-1-6. X-VALUE ADJUSTMENT

Purpose: To obtain compatibility with other VTR

Precaution: Be sure to perform the preset tracking adjustment before perform this adjustment. (Refer to the Service Guide.)
Turn off the auto tracking and set the VTR for manual tracking mode.

Mode	Playback
Signal	Alignment tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	X-value adjuster screw

[Adjustment Method]

- **Adjustment by Hi-Fi alignment tape (NTSC only)**

  When the tracking is set at the center position (by pressing the ▽ and △ keys simultaneously), adjust the RF output to maximum.

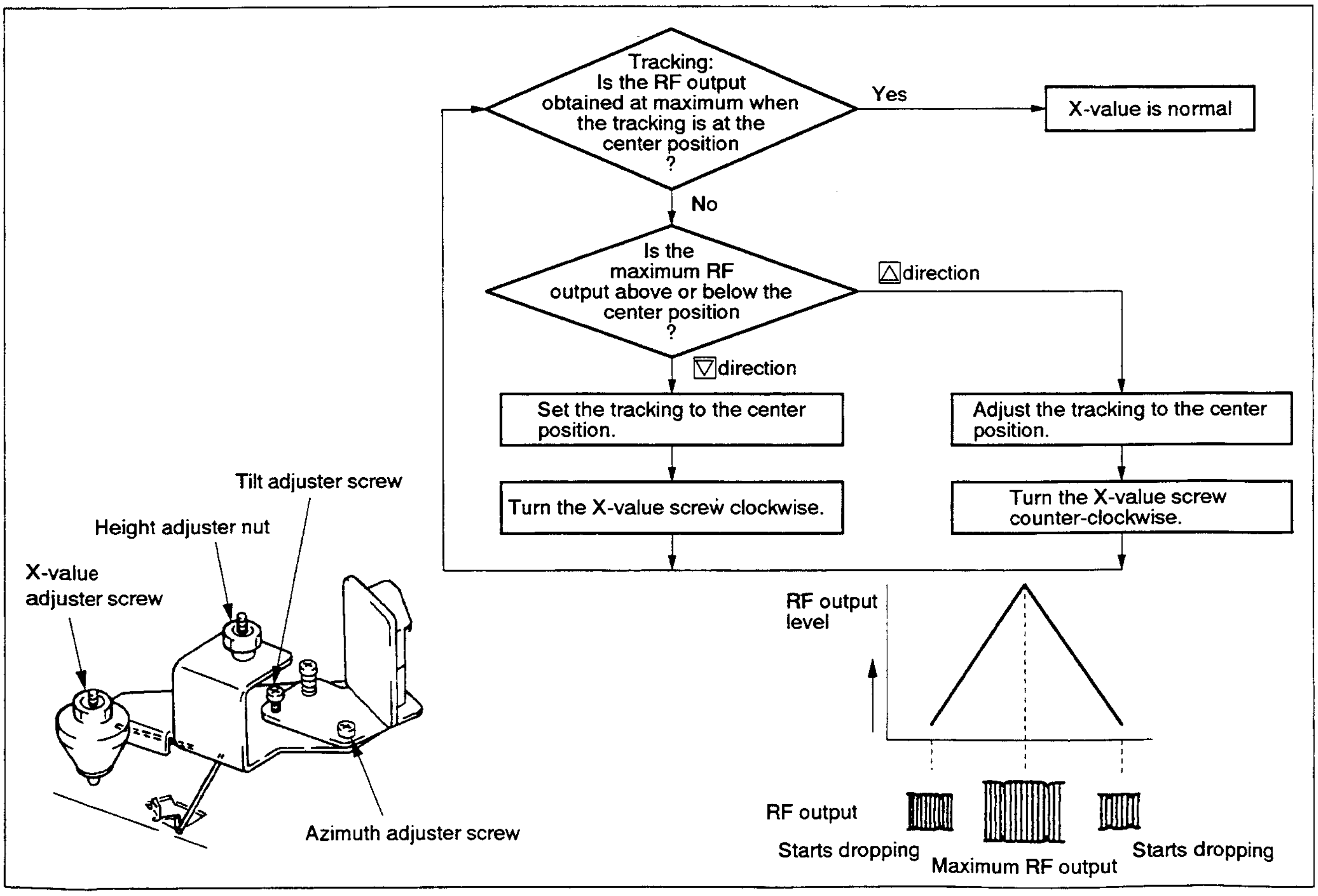

Tracking: Is the RF output obtained at maximum when the tracking is at the center position ?
Yes
X-value is normal
No
Is the maximum RF output above or below the center position ?
△direction
▽direction
Set the tracking to the center position.
Turn the X-value screw clockwise.
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Tilt adjuster screw
Height adjuster nut
X-value adjuster screw
Azimuth adjuster screw
RF output level
RF output
Starts dropping
Maximum RF output
Starts dropping

Fig. 4-7

- **Adjustment by alignment tape**

  Adjust the X-value adjuster screw so that maximum RF output is obtained and also that the RF output drops to the same position on pressing the respective ▽ and △ buttons while the tracking is set at the center position.

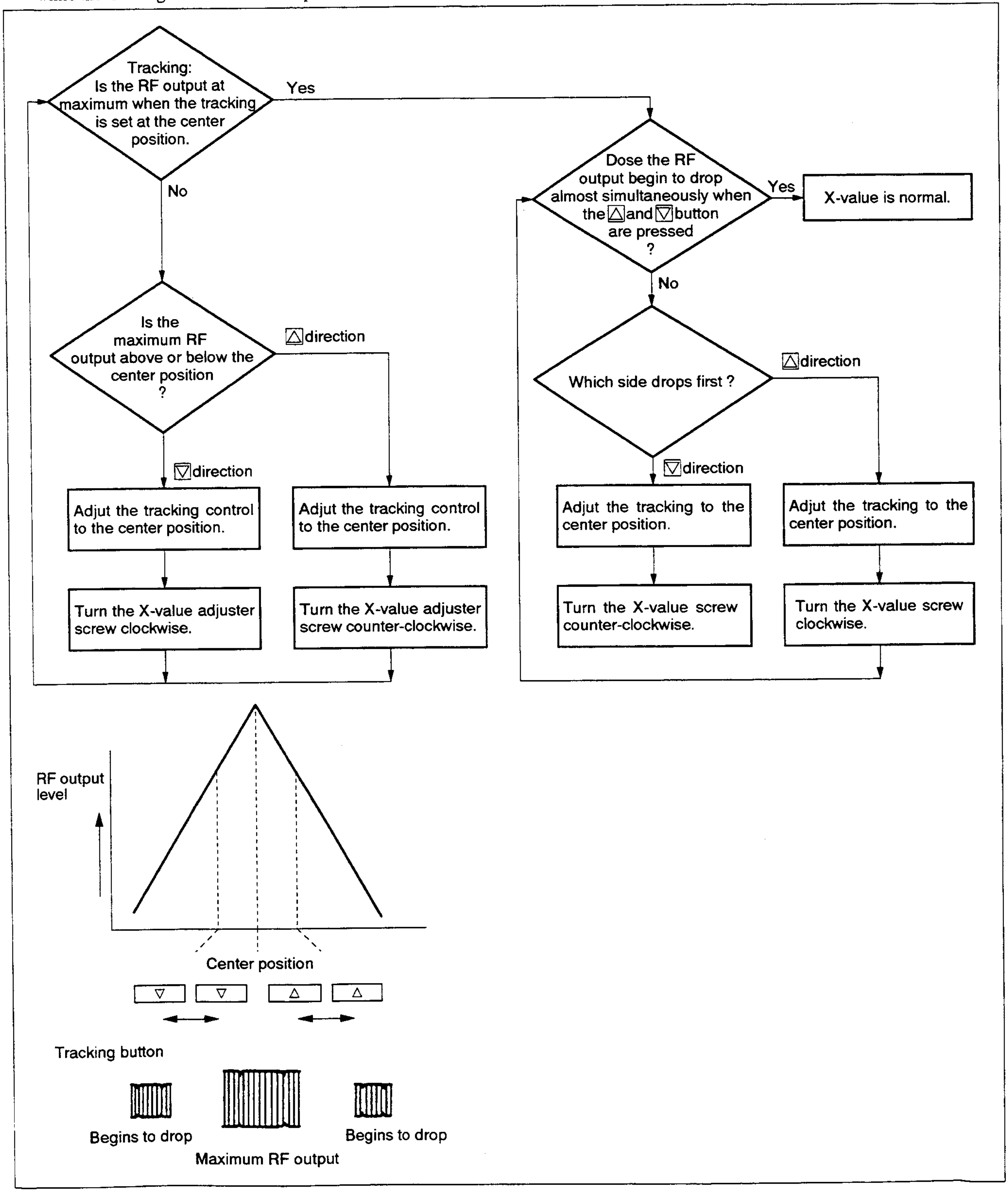

Tracking: Is the RF output at maximum when the tracking is set at the center position.
Yes
No
Is the maximum RF output above or below the center position ?
△direction
▽direction
Adjust the tracking control to the center position.
Turn the X-value adjuster screw clockwise.
Adjust the tracking control to the center position.
Turn the X-value adjuster screw counter-clockwise.
Dose the RF output begin to drop almost simultaneously when the △and▽button are pressed ?
Yes
X-value is normal.
No
Which side drops first ?
△direction
▽direction
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Adjust the tracking to the center position.
Turn the X-value screw clockwise.
RF output level
Center position
▽
▽
△
△
Tracking button
Begins to drop
Maximum RF output
Begins to drop

Fig. 4-8

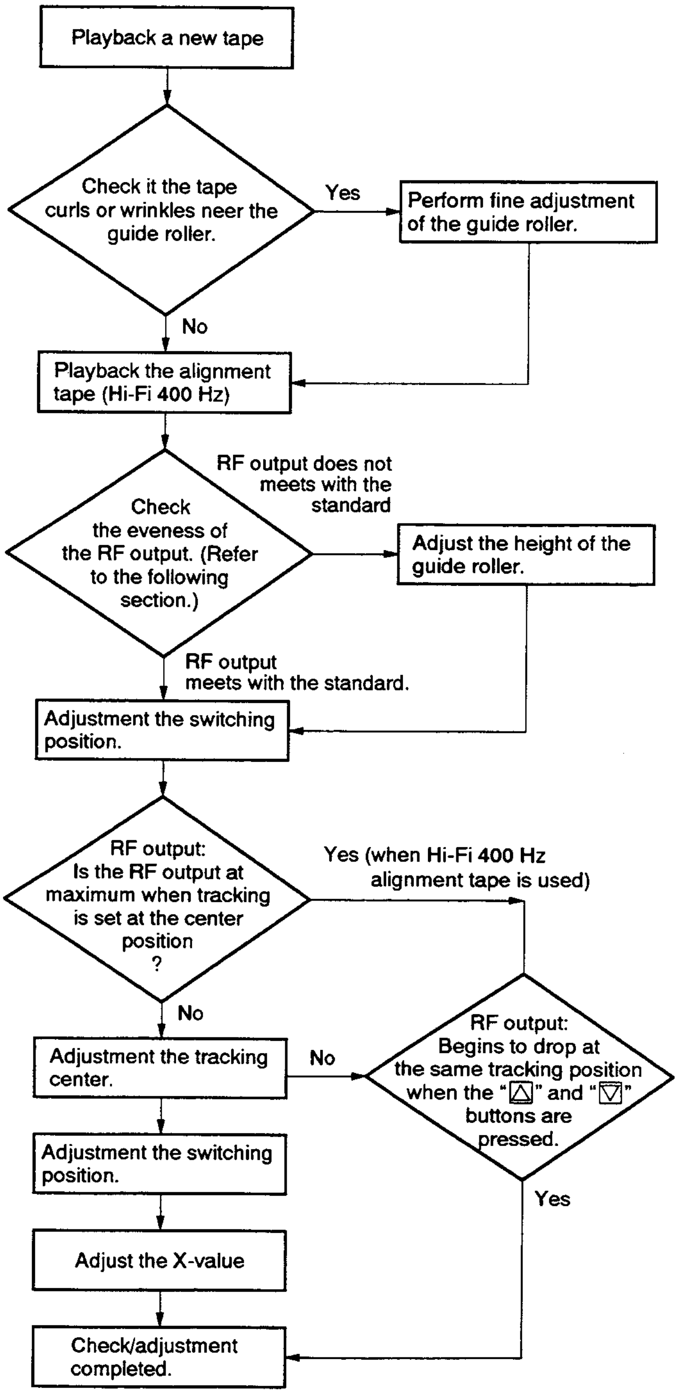
4-1-7. ADJUSTMENTS AFTER REPLACING THE DRUM (VIDEO HEAD)

Purpose: Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

Precaution: Turn off the auto tracking and set the manual tracking mode.

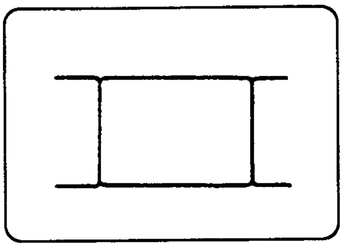
Mode	Playback
Signal	Alignment tape, blank tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SW P pin for RF PC board check.
Adjustment locations	Guide roller (refer to 4-1-2, 4-1-3.) Switching position, Tracking preset, SP delay mono-multi (Refer to the Service Manual), X-value. (refer to 4-1-6.)

[Adjustment Method]

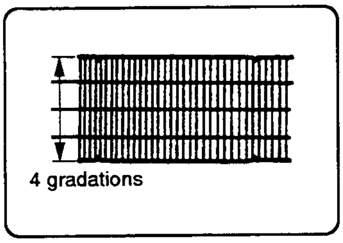

Playback a new tape
Check it the tape curls or wrinkles neer the guide roller.
Yes
Perform fine adjustment of the guide roller.
No
Playback the alignment tape (Hi-Fi 400 Hz)
Check the eveness of the RF output. (Refer to the following section.)
RF output does not meets with the standard
Adjust the height of the guide roller.
RF output meets with the standard.
Adjustment the switching position.
RF output: Is the RF output at maximum when tracking is set at the center position ?
Yes (when Hi-Fi 400 Hz alignment tape is used)
No
Adjustment the tracking center.
No
RF output: Begins to drop at the same tracking position when the "△" and "▽" buttons are pressed.
Yes
Adjustment the switching position.
Adjust the X-value
Check/adjustment completed.

[Checking the evenness and fluctuation of the RF output]

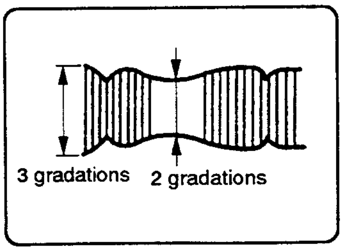
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

4-1-8. CHECKING THE TENSION AND TORQUE

Purpose: To check that the tension, torque and compression force of the tape take-up section and mobile sections to ensure smooth tape run and achieve standard VTR performance.
If the tape transport is not smooth or problems occur in relation to the tape transport speed, perform the following check.

Mode	Each operation mode without loading a cassette tape. (Refer to section 1-3.)
Measuring instrument	Torque gauge, Torque gauge adaptor

Item	VTR operation mode	Reel to be measured	Measurement value
Main brake torque	Stop	Supply and take-up reels	170 g•cm or more
Review torque	Review	Supply reel	180 ± 30 g•cm (using the torque cassette)
Take-up torque	Playback	Take-up reel	95 ± 25 g•cm (using the torque cassette)
Back tension torque	Playback	Take-up reel	33 to 44 g•cm (using the torque cassette)

[Check Method]

Measure the torque using the torque gauge and torque gauge adaptor with the torque gauge fixed.

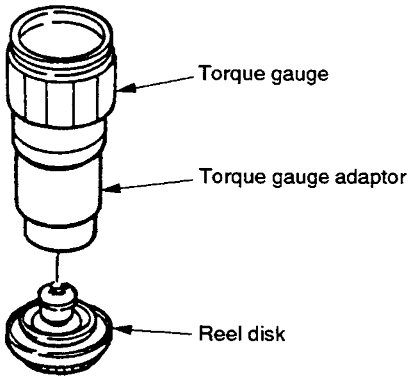


Fig. 4-9

V03056

VHS MECHANICAL ADJUSTMENT MANUAL IV

SONY®

SERVICE MANUAL

H MECHANISM

SUPPLEMENT-1

1. **How to Use the Mode Selector Ⅱ for Adjusting H Type Mechanism Assembly.**
2. **Adjusting Mechanism Using New Alignment Tape (KRV-52NE For NTSC).**

File this supplement with the VHS mechanical adjustment Ⅳ.

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MICROFILM

1. HOW TO USE THE MODE SELECTOR Ⅱ FOR ADJUSTING H TYPE MECHANISM ASSEMBLY

1-1. OUTLINE

To activate the VHS system H type mechanism assembly using mode selector Ⅱ (J-6082-282-A), use connector conversion jig (J-6090-052-A). By using the connector conversion jig, the following operations are possible.

- Loading and unloading action by the loading motor
- Reading of the current setting of the mode switch
- Normal and reverse rotation of the capstan motor

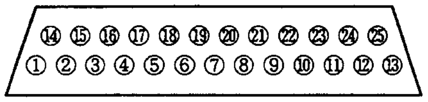
1-2. PREPARATION

1-2-1. ADDITION OF POWER SUPPLY CABLE (Already added Mode Selector Ⅱ also available)

In order to drive the capstan motor, the power +5 V and +12 V are supplied from the Mode Selector Ⅱ. Disassemble the D-SUB connector of the Mode Selector cable, then solder the following three places.

Supplied 3-pin cable	DSUB connector of the mode selector Ⅱ	Voltage
Pin 1 (Red index)	Pin 20	+12 V
Pin 2	Pin 25	GND
Pin 3	Pin 24	+5 V

- Connector pin number assignment of the DSUB connector (From the soldering side)



- When connections are made, check that +5 V and +12 V are available at the 3-pin cable connector.

1-2-2. CHECKING THE SOFTWARE VERSION

Turn on the power of the mode selector II.

If the reading for the software version on the mode selector II is not 1.10 or higher, replace the New ROM (J-6082-314-A).

1-3. CONNECTION

1-3-1. CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE MODE SELECTOR Ⅱ (See Fig. 1-1)

Insert the connectors of the two 6-pin cables (one is white and the other is black) and the 3-pin cable from the mode selector Ⅱ to the corresponding connectors on the connector conversion jig (J-6090-052-A).

1-3-2. CONNECTION BETWEEN THE CONNECTOR CONVERSION JIG AND THE H TYPE MECHANISM ASSEMBLY

With the power of the mode selector Ⅱ turned off, insert the following three connectors to the corresponding connectors on the H type mechanism assembly.

- 3-pin connector for the loading motor
- 5-pin connector for the mode switch
- 8-pin connector for the capstan motor

Set the speed control for the minimum setting (fully counter-clockwise).

1-4. OPERATION

1-4-1. OPERATION OF THE LOADING MOTOR ON THE H TYPE MECHANISM ASSEMBLY

(1) Select the H type mechanism assembly setting on the mode selector Ⅱ.

(2) After this, procedures are the same as those for the previous model types.
For the operating method, see pages 3 to 5 of "8 mm Video Mechanism Manual Ⅵ (TK Mechanism) Supplement-1".
For the loading method, see page 3 of "VHS Mechanical Adjustment Manual Ⅳ (H Mechanism)".

1-4-2. OPERATION OF THE CAPSTAN MOTOR ON THE H TYPE MECHANISM ASSEMBLY

(1) For the loading motor operation under Section 1-4-1, change the mode setting to the FF/REW mode with the mode switch.

(2) Turn the speed control gradually in clockwise direction, and the capstan motor starts rotating. To turn the capstan motor in desired rotating direction, change the FWD/RVS setting of the rotating direction switch.

1-5. PRECAUTIONS

- Turn the speed control only when necessary. Otherwise, hold the speed control turned at fully counterclockwise direction. If the power of the mode selector II is turned on with the speed control turned in clockwise direction, +12V power fails and the power of the mode selector II cannot be turned on.
- Although the connector conversion jig (J-6090-052-A) has rubber feet, do not make a short circuit on the bottom surface of the connector conversion jig via foreign conductive materials.

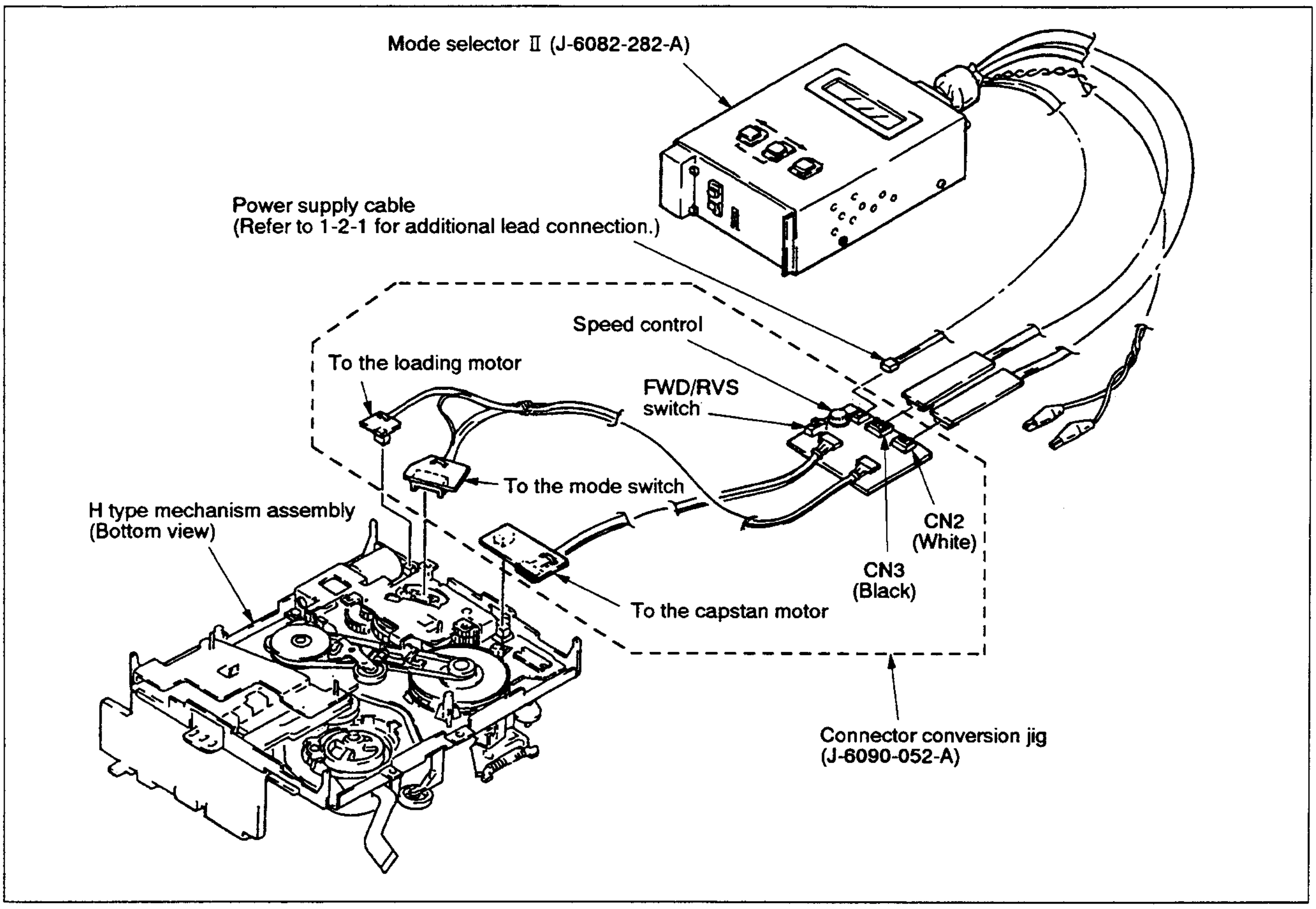

Mode selector Ⅱ (J-6082-282-A)
Power supply cable
(Refer to 1-2-1 for additional lead connection.)
Speed control
To the loading motor
FWD/RVS switch
To the mode switch
H type mechanism assembly
(Bottom view)
CN2
(White)
CN3
(Black)
To the capstan motor
Connector conversion jig
(J-6090-052-A)

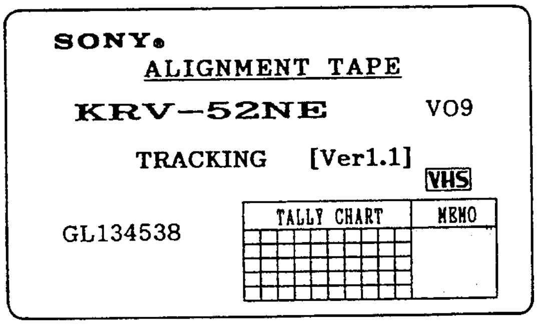
Fig. 1-1

2. ADJUSTING THE MECHANISM USING NEW ALIGNMENT TAPE (KRV-52NE for NTSC)

The conventional alignment tape (For NTSC) is now replaced with alignment tape KRV-52NE, and the following describes how to align the mechanism using the KRV-52NE. For details on the use of KRV-51N2 for each model, refer to the service manuals which will be issued in the future.

Name	Parts No.	Remarks
Alignment tape KRV-52NE for NTSC	8-192-605-41	For tape path, audio azimuth, and X-value adjustments
Alignment tape KRV-51N2 for NTSC	8-192-605-32	For electrical adjustments (RF, AF, and switching position) and operation check

Note: The KRV-52NE has or does not have Ver No. depending on new or old type as shown below. (New one has Ver No.)
Note that an adjusting method of X-value is different.



SONY®
ALIGNMENT TAPE
KRV–52NE V09
TRACKING [Ver1.1]
VHS
GL134538

TALLY CHART	MEMO

Contents:

KRV-52NE (NTSC)

Time	Video	Audio
20 min.	Recording only at 1 MHz, A-ch. EP mode RF skipping once per 5 frames	5 kHz full tracks

KRV-51N2 (NTSC)

Class	Mode	Time	Video	Audio (HiFi/Normal)
1	SP	7 min.	Color bar	400 Hz
2	SP	3 min.	Mono. scope	400 Hz
3	EP	7 min.	Color bar	400 Hz
4	EP	3 min.	Mono. scope	400 Hz

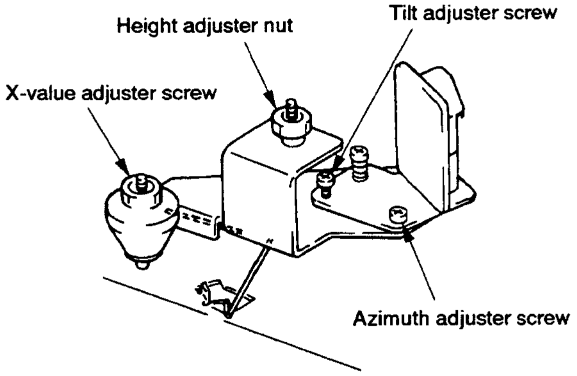
2-1. ADJUSTMENT USING ALIGNMENT TAPE (KRV-52NE for NTSC having no version No.)

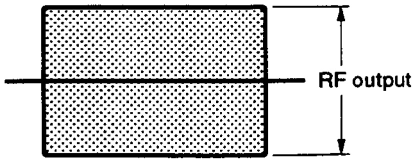
2-1-1. X-VALUE ADJUSTMENT (Using the tape having no version No.)

Purpose: To obtain compatibility with other VCRs.

Precaution: Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC having no version No.)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	X-value adjuster screw



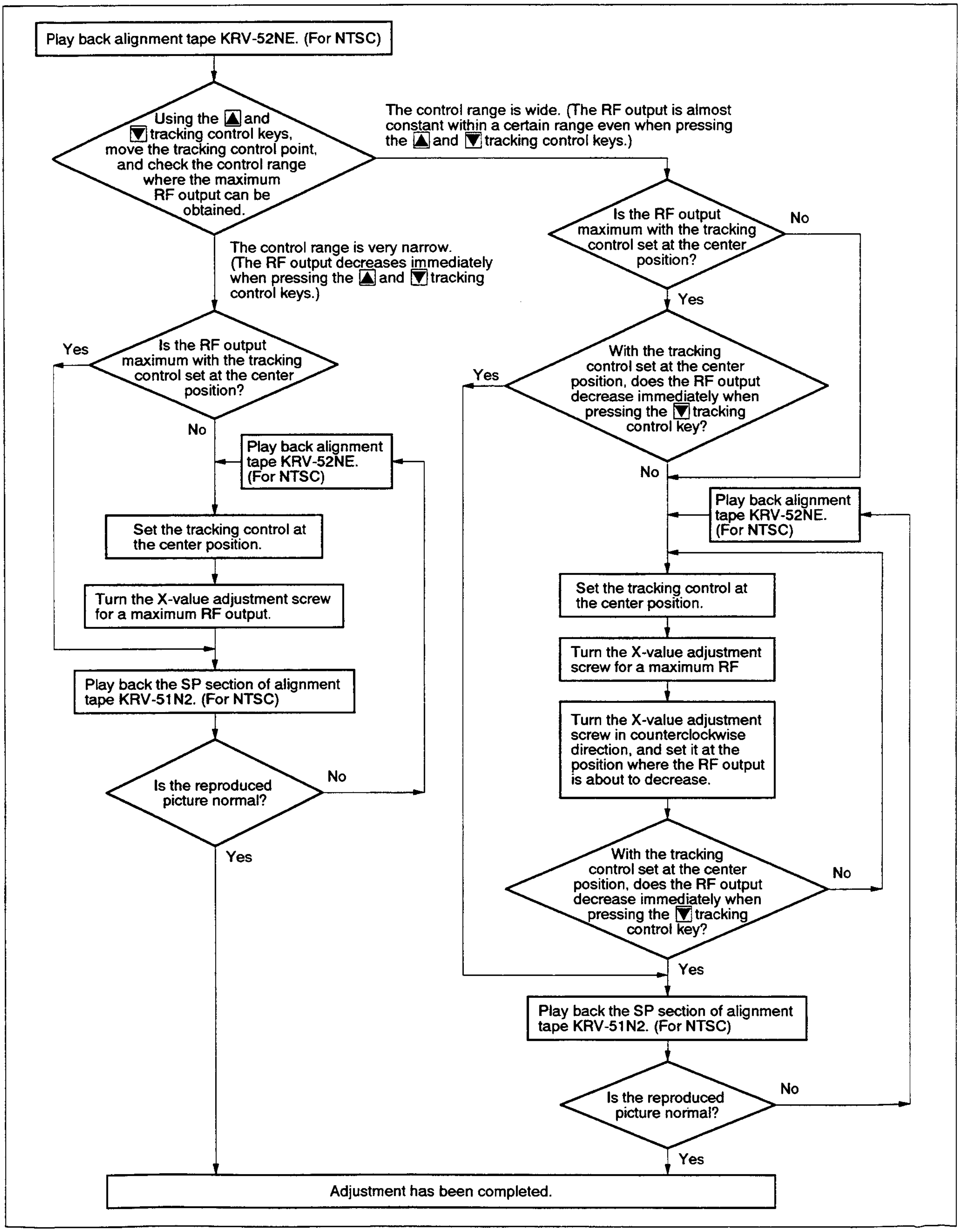


RF output shall be maximum at the center position of the tracking control.

[Adjustment Method]

Set the tracking control at the center position. For the VCRs equipped with narrow gap video heads, set the X-value adjustment screw where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the X-value adjustment screw both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.

X-VALUE ADJUSTMENT (Using the tape having no version No.)


Play back alignment tape KRV-52NE. (For NTSC)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF output.
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Play back alignment tape KRV-52NE. (For NTSC)
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Turn the X-value adjustment screw in counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Is the reproduced picture normal?
No
Yes
Adjustment has been completed.

When adjustment is complete, adjust the height of No. 3 and No. 6 guide rollers on page 10.

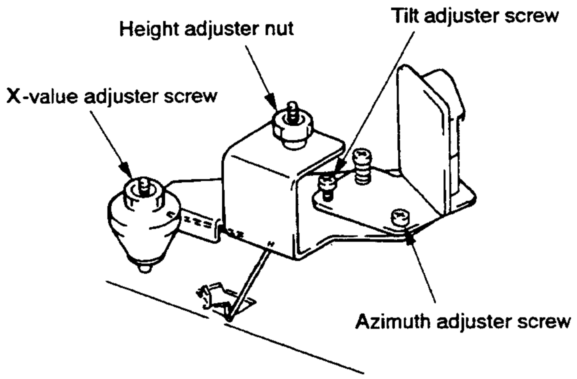
2-2. ADJUSTMENT USING ALIGNMENT TAPE (KRV-52NE for NTSC having the version No.)

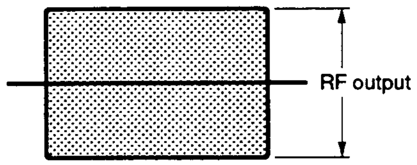
2-2-1. X-VALUE ADJUSTMENT (Using the tape having the version No.)

Purpose: To obtain compatibility with other VCRs.

Precaution: Before starting to adjust X-value, set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC having the version No.)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	X-value adjuster screw



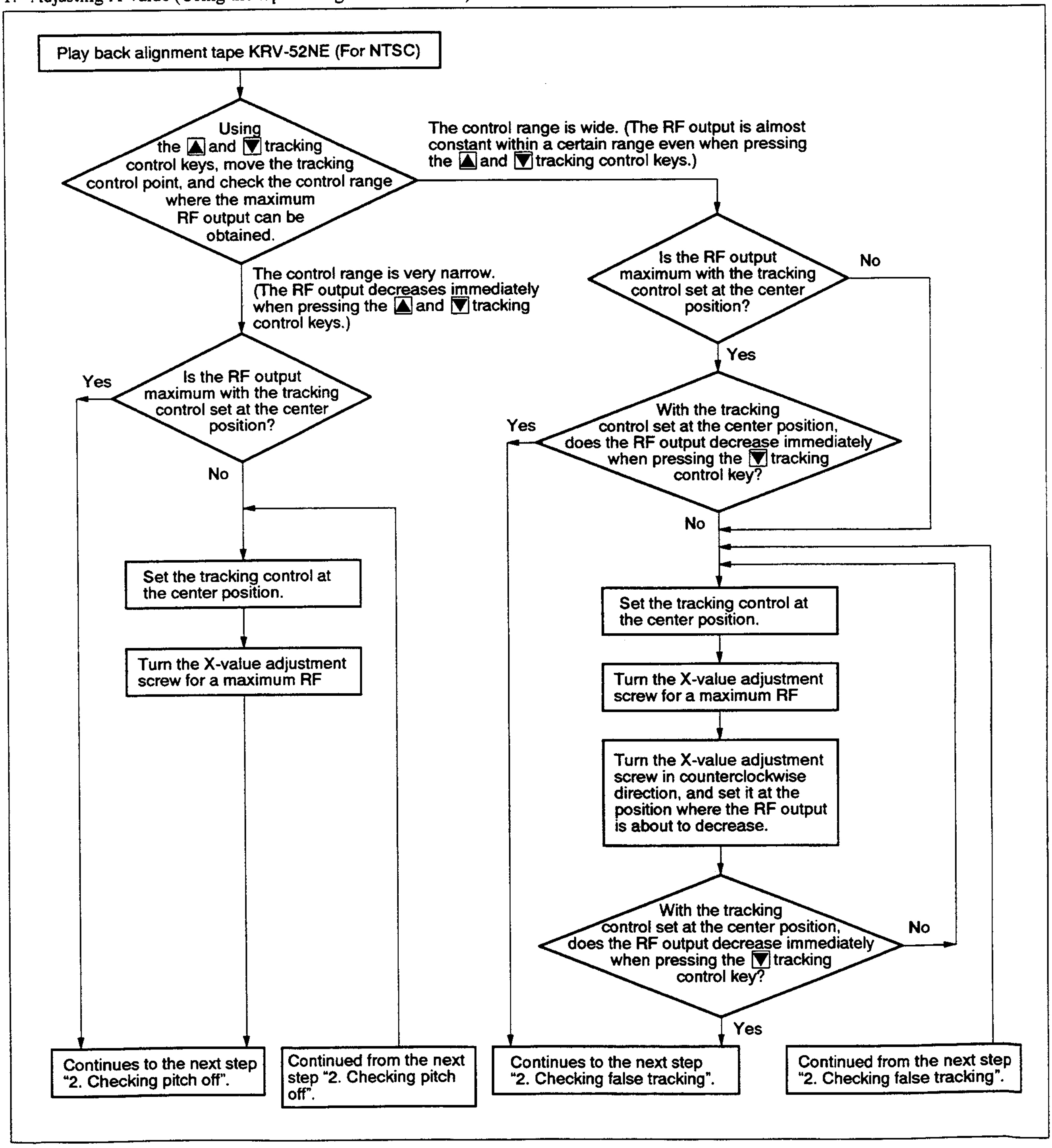


RF output shall be maximum at the center position of the tracking control.

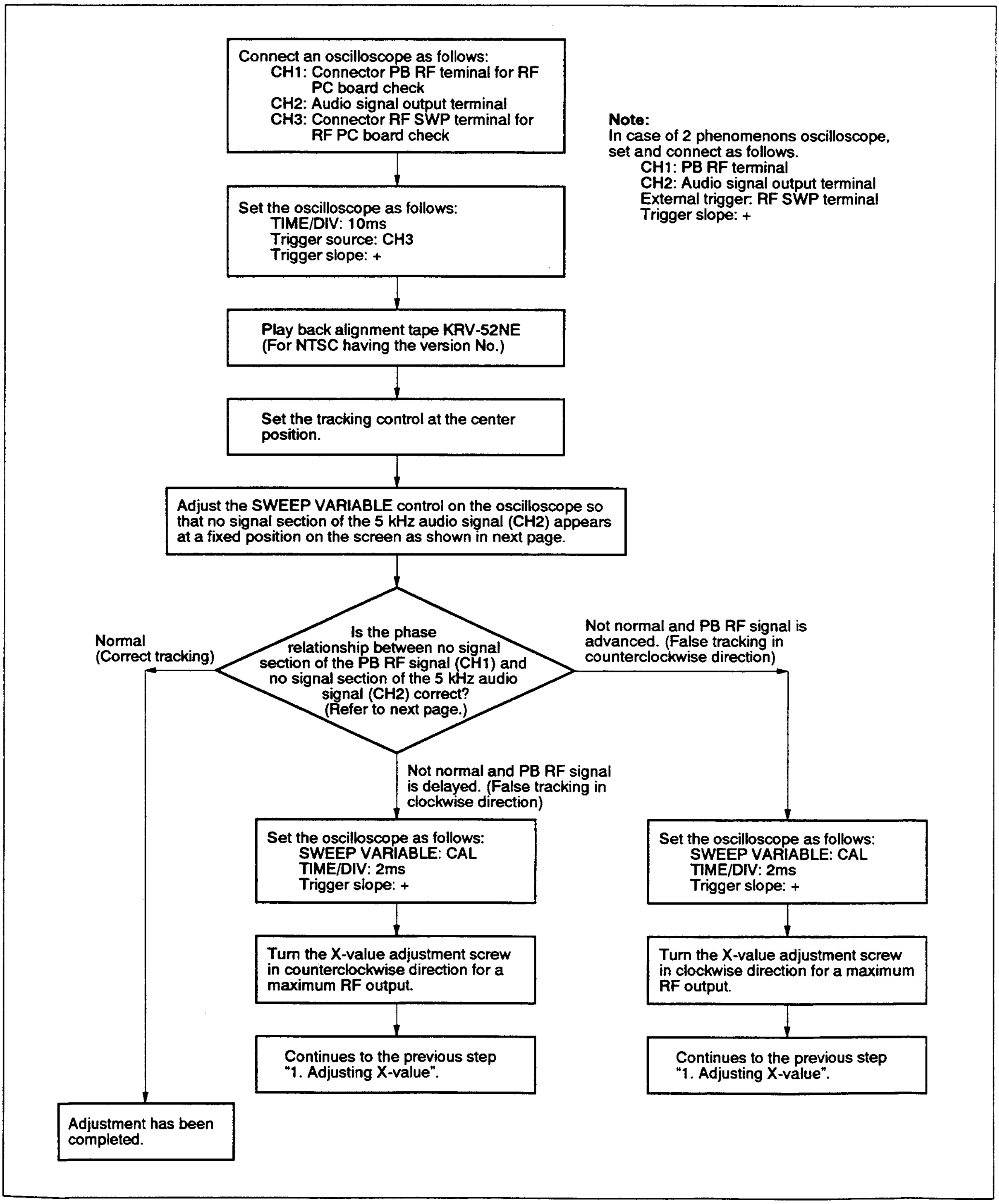
[Adjustment Method]

Set the tracking control at the center position. For the VCRs equipped with narrow gap video heads, set the X-value adjustment screw where a maximum RF output is obtained. For the VCRs equipped with wide gap video heads, set the X-value adjustment screw both where a maximum RF output is obtained and where the RF output decreases immediately when the ▼ tracking control key is pressed.

1. Adjusting X-value (Using the tape having the version No.)

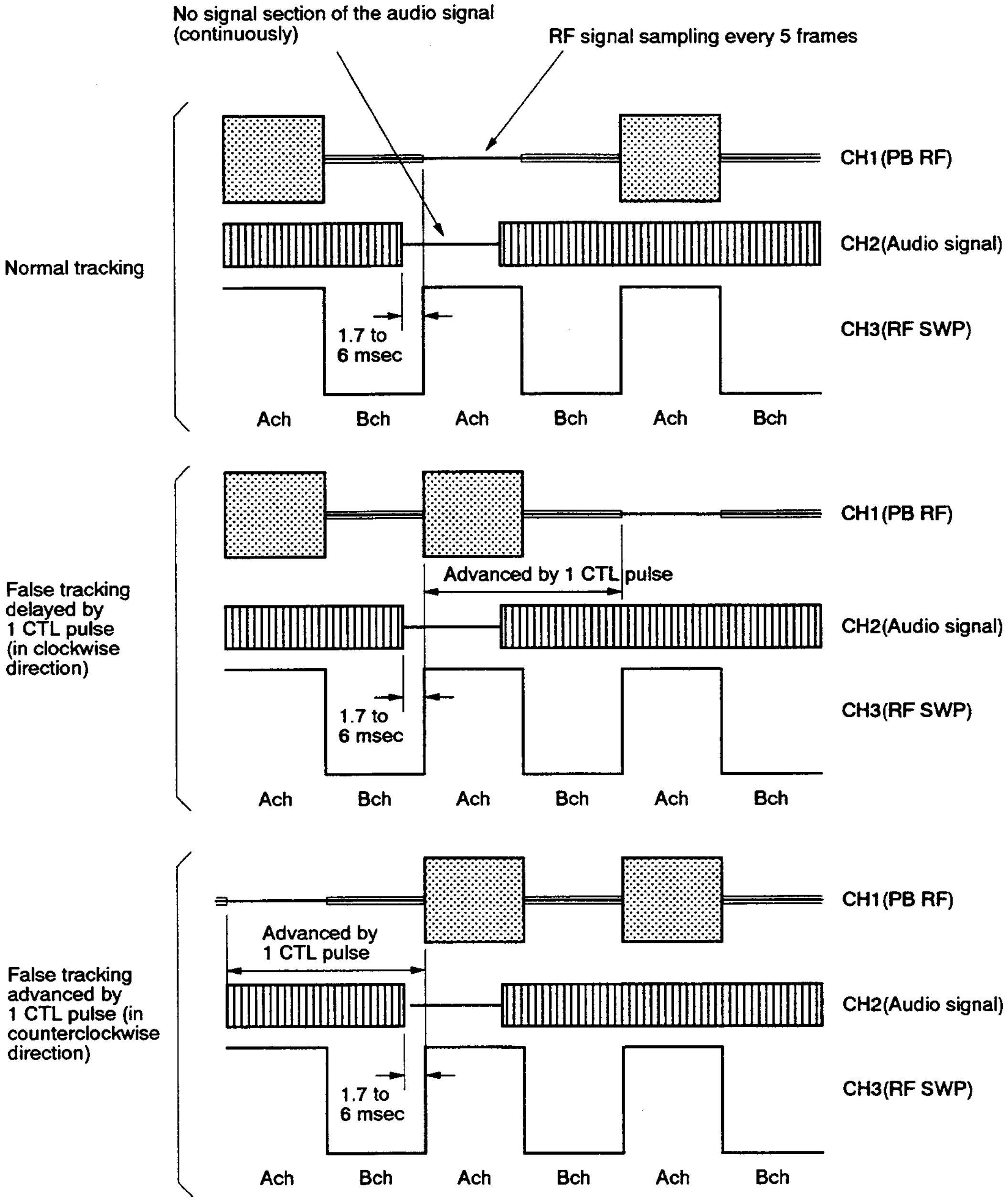

Play back alignment tape KRV-52NE (For NTSC)
Using the ▲ and ▼ tracking control keys, move the tracking control point, and check the control range where the maximum RF output can be obtained.
The control range is wide. (The RF output is almost constant within a certain range even when pressing the ▲ and ▼ tracking control keys.)
The control range is very narrow. (The RF output decreases immediately when pressing the ▲ and ▼ tracking control keys.)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Is the RF output maximum with the tracking control set at the center position?
No
Yes
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
No
Set the tracking control at the center position.
Turn the X-value adjustment screw for a maximum RF
Turn the X-value adjustment screw in counterclockwise direction, and set it at the position where the RF output is about to decrease.
With the tracking control set at the center position, does the RF output decrease immediately when pressing the ▼ tracking control key?
No
Yes
Continues to the next step "2. Checking pitch off".
Continued from the next step "2. Checking pitch off".
Continues to the next step "2. Checking false tracking".
Continued from the next step "2. Checking false tracking".

2. Checking false tracking (Using the tape having the version No.)


Connect an oscilloscope as follows:
CH1: Connector PB RF teminal for RF PC board check
CH2: Audio signal output terminal
CH3: Connector RF SWP terminal for RF PC board check
Set the oscilloscope as follows:
TIME/DIV: 10ms
Trigger source: CH3
Trigger slope: +
Play back alignment tape KRV-52NE (For NTSC having the version No.)
Set the tracking control at the center position.
Adjust the SWEEP VARIABLE control on the oscilloscope so that no signal section of the 5 kHz audio signal (CH2) appears at a fixed position on the screen as shown in next page.
Is the phase relationship between no signal section of the PB RF signal (CH1) and no signal section of the 5 kHz audio signal (CH2) correct? (Refer to next page.)
Normal (Correct tracking)
Not normal and PB RF signal is advanced. (False tracking in counterclockwise direction)
Not normal and PB RF signal is delayed. (False tracking in clockwise direction)
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Turn the X-value adjustment screw in counterclockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Set the oscilloscope as follows:
SWEEP VARIABLE: CAL
TIME/DIV: 2ms
Trigger slope: +
Turn the X-value adjustment screw in clockwise direction for a maximum RF output.
Continues to the previous step "1. Adjusting X-value".
Adjustment has been completed.

Note:
In case of 2 phenomenons oscilloscope, set and connect as follows.
CH1: PB RF terminal
CH2: Audio signal output terminal
External trigger: RF SWP terminal
Trigger slope: +

Using the tape having the version No.


No signal section of the audio signal (continuously)
RF signal sampling every 5 frames
Normal tracking
CH1(PB RF)
CH2(Audio signal)
CH3(RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking delayed by 1 CTL pulse (in clockwise direction)
Advanced by 1 CTL pulse
CH1(PB RF)
CH2(Audio signal)
CH3(RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch
False tracking advanced by 1 CTL pulse (in counterclockwise direction)
Advanced by 1 CTL pulse
CH1(PB RF)
CH2(Audio signal)
CH3(RF SWP)
1.7 to 6 msec
Ach
Bch
Ach
Bch
Ach
Bch

2-3. ADJUSTING THE MECHANISM USING ALIGNMENT TAPE (KRV-52NE for NTSC)

2-3-1. HEIGHT ADJUSTMENT OF GUIDE ROLLERS NO. 3 AND NO. 6

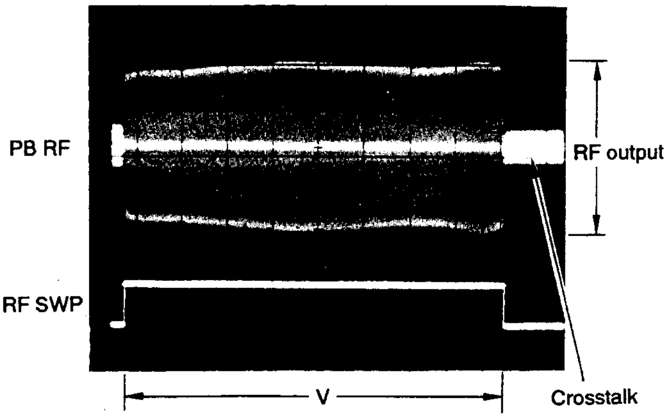
Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC)
Measuring instrument	Oscilloscope TIM/DIV: 2ms Trigger source: CH2 Trigger slope: +
Measuring point	CH-1: Connector PB RF pin for RF PC board check CH-2: Connector RF SWP pin for RF PC board check
Adjustment locations	Height adjustment screw for No.3 tape guide roller Height adjustment screw for No.6 tape guide roller

[Adjustment Method]

The following adjustment shall be carried out after completed Section 2-1-1 "X-value adjustment and check".

1) Deactivate the automatic tracking control, and set the tracking control at the center position. To set the tracking control at the center position for the VCRs equipped with the ▲ and ▼ tracking control keys, press both the ▲ and ▼ tracking control keys at the same time. For the VCRs not equipped with the tracking control keys, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

2) Check if the RF output changes in amplitude by pressing the tracking control key. The RF output should change periodically (changes from a minimum amplitude to a maximum amplitude, and to the minimum amplitude again).

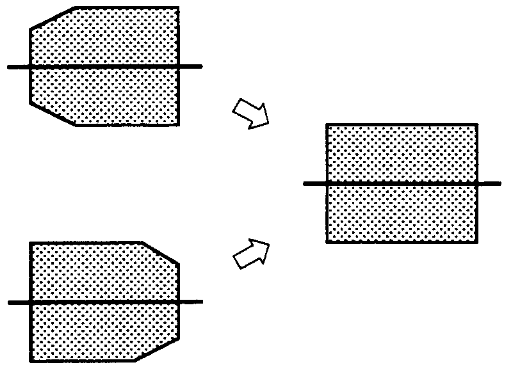


3) Turn the height adjustment screws of tape guide rollers No.3 and No.6 so that the RF output envelope becomes as flat as possible.

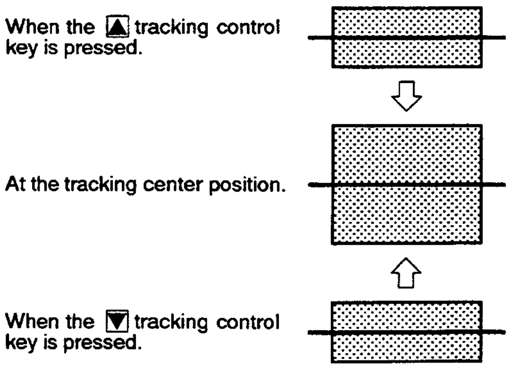
4) Press the ▲ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.

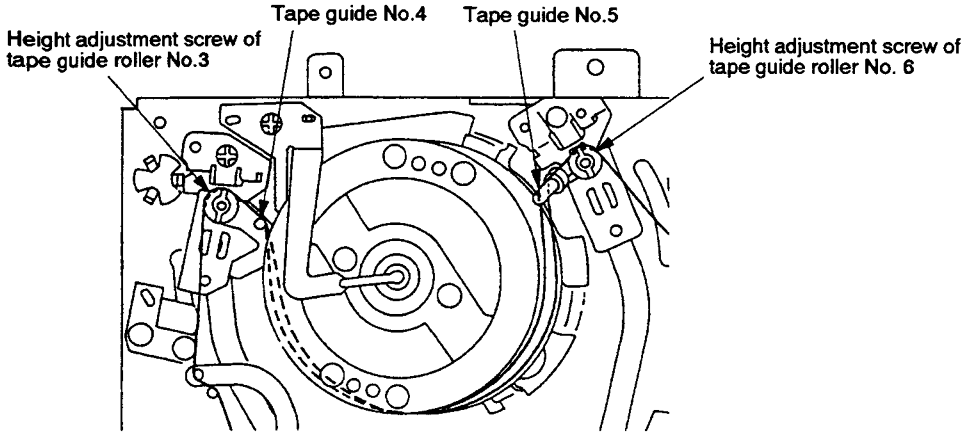
5) Press the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.

Turn the height adjustment screws of tape guide rollers No.3 and No.6 little by little so that the RF output envelope becomes as flat as possible.



Press the ▼ tracking control key, then the ▼ tracking control key, and check that both the beginning and end of the RF output change together the same in amplitude.


When the ▲ tracking control key is pressed.
At the tracking center position.
When the ▼ tracking control key is pressed.


Tape guide No.4
Tape guide No.5
Height adjustment screw of tape guide roller No.3
Height adjustment screw of tape guide roller No. 6

2-3-2. ACE HEAD ASSEMBLY ADJUSTMENT (ROUGH ADJUSTMENT) (Figs. 2-1 and 2-2)

Purpose: Allows the tape to make even contact with the head for recording and playback of the specified track.

Mode	Playback
Jig	Blank tape
Adjustment locations	Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Mount the ACE head assembly. At this time, adjust the height so that the height of guide flange No. 7 matches the level of the lower edge of the control head.
2) Remove the adjustment tool and load a new tape, then set the unit for playback.
3) Check that the tape does not curl or rise up noticeably near the ACE head.
4) If the tape curls up or rises noticeably, readjust the tilt adjuster screw and the height adjuster nut.
(The height of the ACE head should be adjusted so that the lower edge of the tape is approx. 0.1 to 0.15 mm from the control head.)
5) Perform precision adjustment.

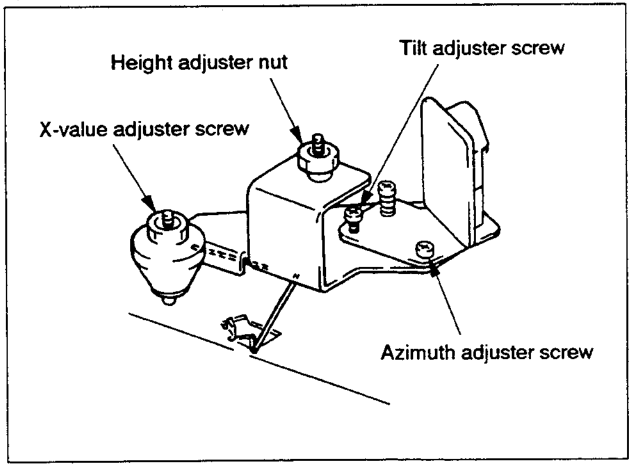


Fig. 2-1

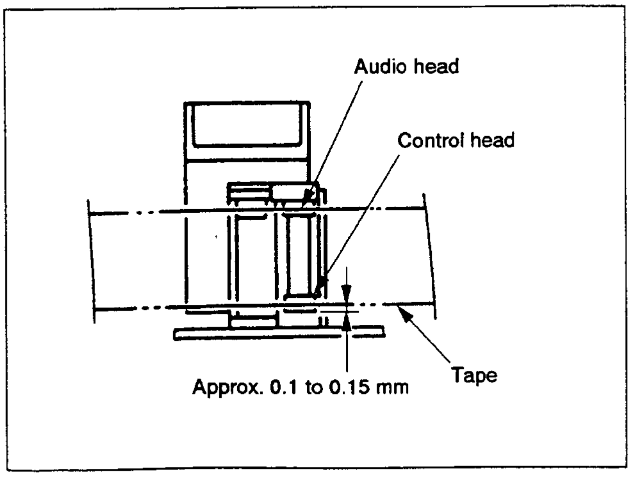


Fig. 2-2

2-3-3. ACE HEAD ASSEMBLY ADJUSTMENT (PRECISION ADJUSTMENT)

Mode	Playback
Signal	Alignment tape (KRV-52NE 5 kHz) (For NTSC)
Measuring instrument	Oscilloscope
Measuring point	Audio output terminal
Adjustment locations	Azimuth adjuster screw, Height adjuster nut, Tilt adjuster screw

[Adjustment Method]

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or rise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.

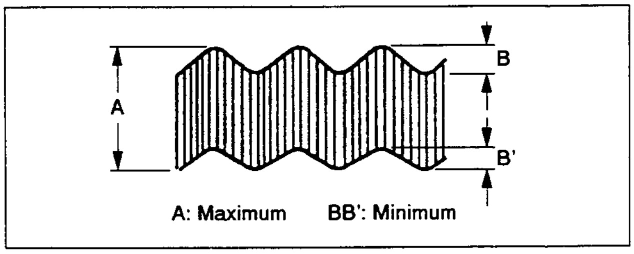


Fig. 2-3

2-3-4. ADJUSTMENTS AFTER REPLACING THE DRUM (VIDEO HEAD)

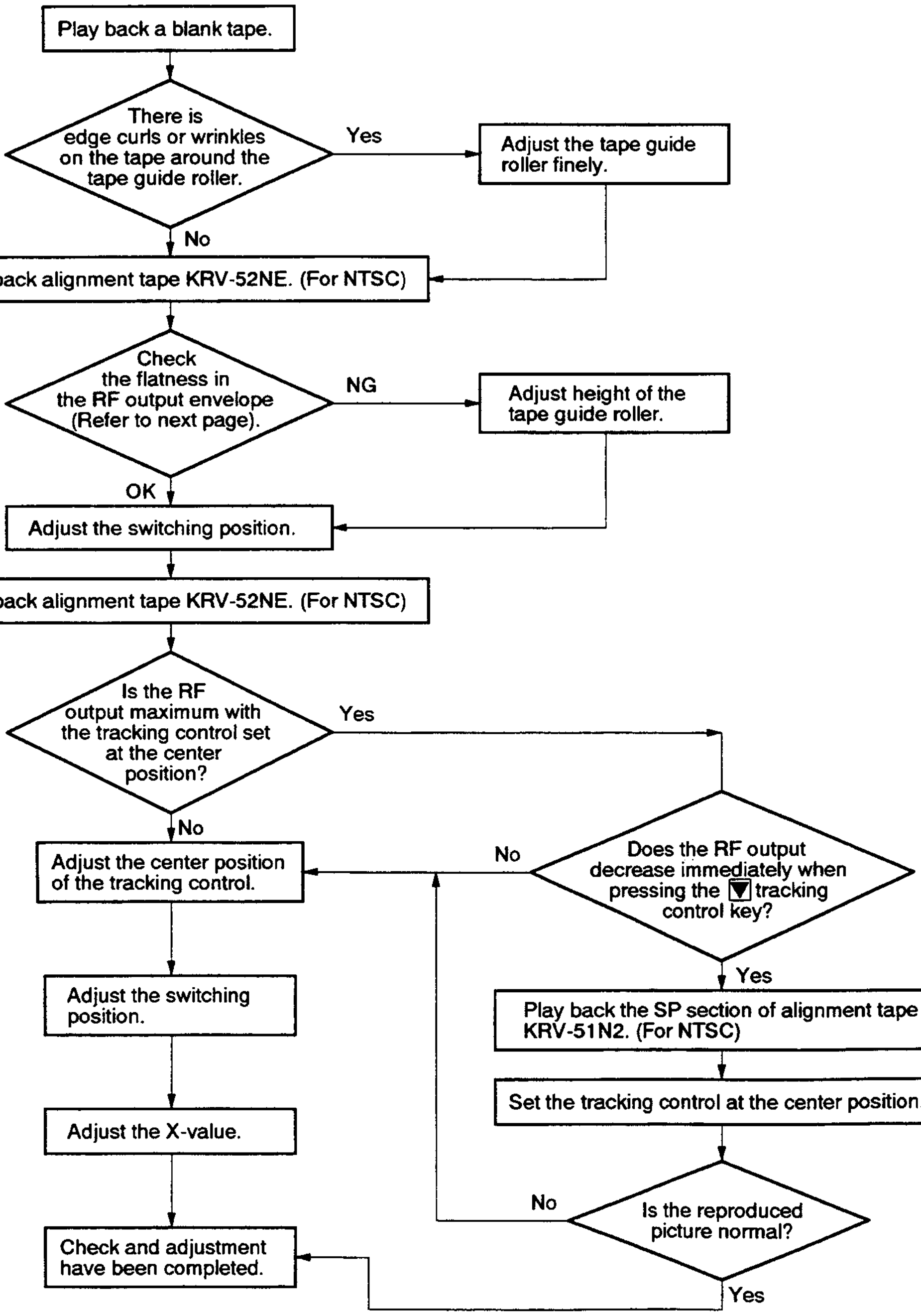
Purpose: Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

Note 1: Deactivate the automatic tracking control for setting the mechanism in manual tracking control mode.

Note 2: To set the tracking control at the center position, deactivate the automatic tracking control by pressing the tracking AUTO/MANUAL key on the remote control unit during threading operation (after a tape is inserted but before the VCR starts playing back the tape).

Mode	Playback
Signal	Alignment tape KRV-52NE (For NTSC), blank tape
Measuring instrument	Oscilloscope
Measuring point	CH-1: Connector PB RF pin for RF PC board check. CH-2: Connector RF SWP pin for RF PC board check.
Adjustment locations	Guide roller (Refer to 2-3-1.) Switching position (Refer to the Service Manual) X-value (Refer to 2-1-1, 2-1-2.)

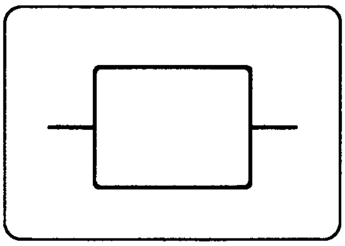
[Adjustment Method]



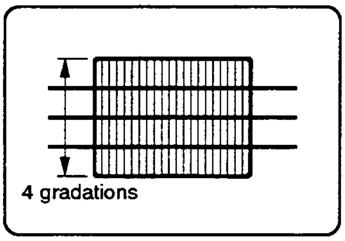
Play back a blank tape.
There is edge curls or wrinkles on the tape around the tape guide roller.
Yes
Adjust the tape guide roller finely.
No
Play back alignment tape KRV-52NE. (For NTSC)
Check the flatness in the RF output envelope (Refer to next page).
NG
Adjust height of the tape guide roller.
OK
Adjust the switching position.
Play back alignment tape KRV-52NE. (For NTSC)
Is the RF output maximum with the tracking control set at the center position?
Yes
No
Adjust the center position of the tracking control.
No
Does the RF output decrease immediately when pressing the ▼ tracking control key?
Yes
Play back the SP section of alignment tape KRV-51N2. (For NTSC)
Set the tracking control at the center position.
Adjust the switching position.
Adjust the X-value.
No
Is the reproduced picture normal?
Yes
Check and adjustment have been completed.

[Checking the evenness and fluctuation of the RF output]

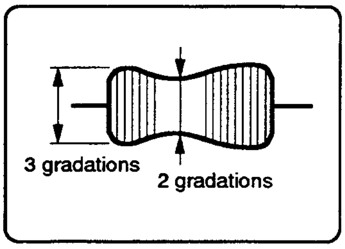
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

VHS MECHANICAL ADJUSTMENT MANUAL IV

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VHS MECHANICAL ADJUSTMENT MANUAL IV

SONY®
SERVICE MANUAL

H MECHANISM

SUPPLEMENT-2

File this supplement with the VHS mechanical adjustment IV and supplement-1.

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1. CORRECTION

In the VHS Mechanism Adjustment Manual IV (Supplement-1), an adjustment sequence was wrong, and it is corrected as follow;

1-1. Adjustment Sequence (VHS Mechanism Adjustment Manual IV (Supplement-1) Page 6 to 11)

(1) Adjustment of No. 3 and No. 6 guide roller height
Delete the "The following adjustment shall be carried out after completed Section 2-1-1 "X-value adjustment and check" under "Adjustment Method" on page 10.

(2) Adjustment of ACE head assembly

Note: In the adjustment of ACE head assembly (coarse adjustment and fine adjustment), if a azimuth, height and tilt were adjusted, again adjust the height of No. 3 and No. 6 guide rollers.

(3) Adjustment of X value

MICROFILM

2. MODIFICATION

2-1. CHANGING THE RECORDED CONTENTS OF ALIGNMENT TAPE

KRV-52NE (NTSC) (Ver. 1.2)

Time	Video	Audio
20 min.	Recording only at 1 MHz, A-ch. EP mode RF skipping once per 5 frames	5 kHz → 4 kHz full tracks

2-2. TG2 ROLLER, FE HEAD ASSEMBLY (Refer to VHS Mechanical Adjustment Manual Ⅳ page14)

- The TG2 roller is provided with either of two types, fixed or straight. For the fixed type, section 3-5 is added.

3-5. TG2 ROLLER, FE HEAD ASSEMBLY (Fig. 3-5)

1) Remove screw ① to pull out FE head assembly ②.

[Note on Mounting]

- Keep clean the surface contacts tape of TG2 roller.

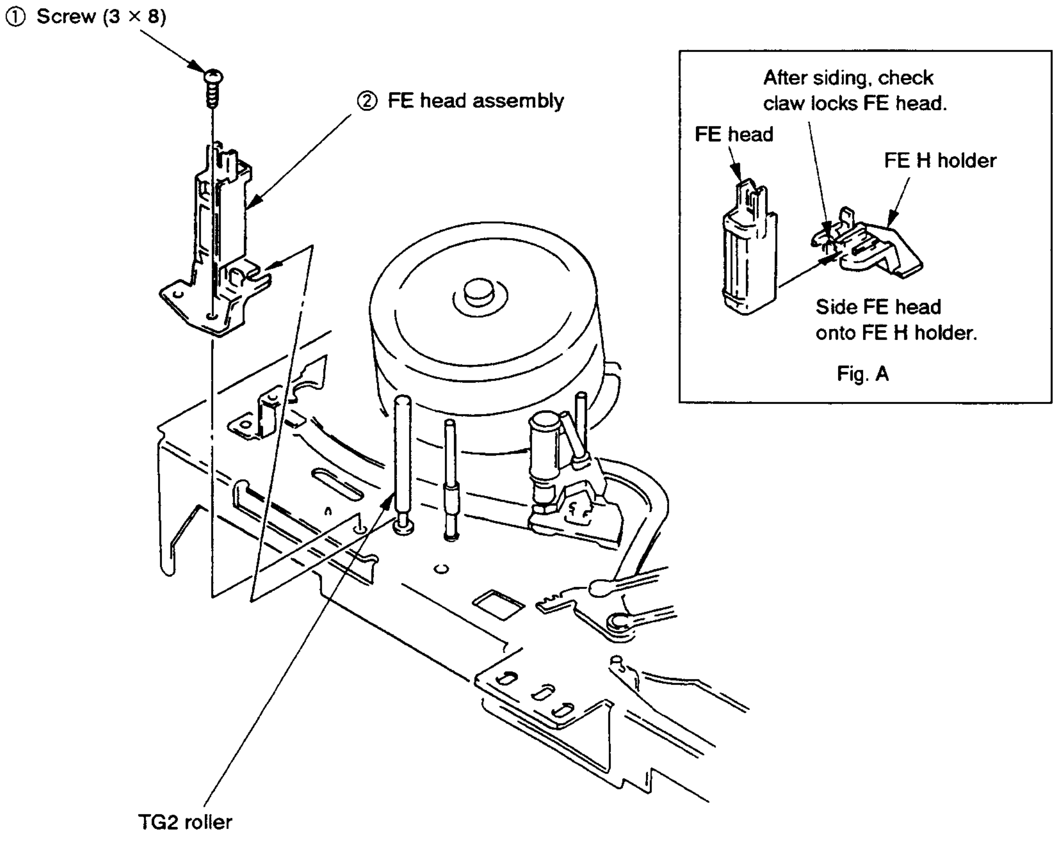
① Screw (3 × 8)
② FE head assembly
TG2 roller
After siding, check claw locks FE head.
FE head
FE H holder
Side FE head onto FE H holder.
Fig. A

Fig. 3-5

2-3. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Refer to VHS Mechanical Adjustment Manual Ⅳ page 17)

- There is another type in TG3 and TG6 guide roller assemblies, which is not attached with a screw (B2X3). For the screwless type, section 3-8 is added.

3-8. TG3, TG6 GUIDE ROLLER ASSEMBLIES (Fig. 3-8)

1) TG3 guide roller assembly ① by turning it in arrow Ⓐ direction.
2) Removal the spring ②.
3) TG6 guide roller assembly ③ by turning it in arrow Ⓑ direction.
4) Removal the spring ④.

[Note on Mounting]

- Keep clean the surface contacts tape of TG3 and TG6 guide roller assemblies ①, ③.

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

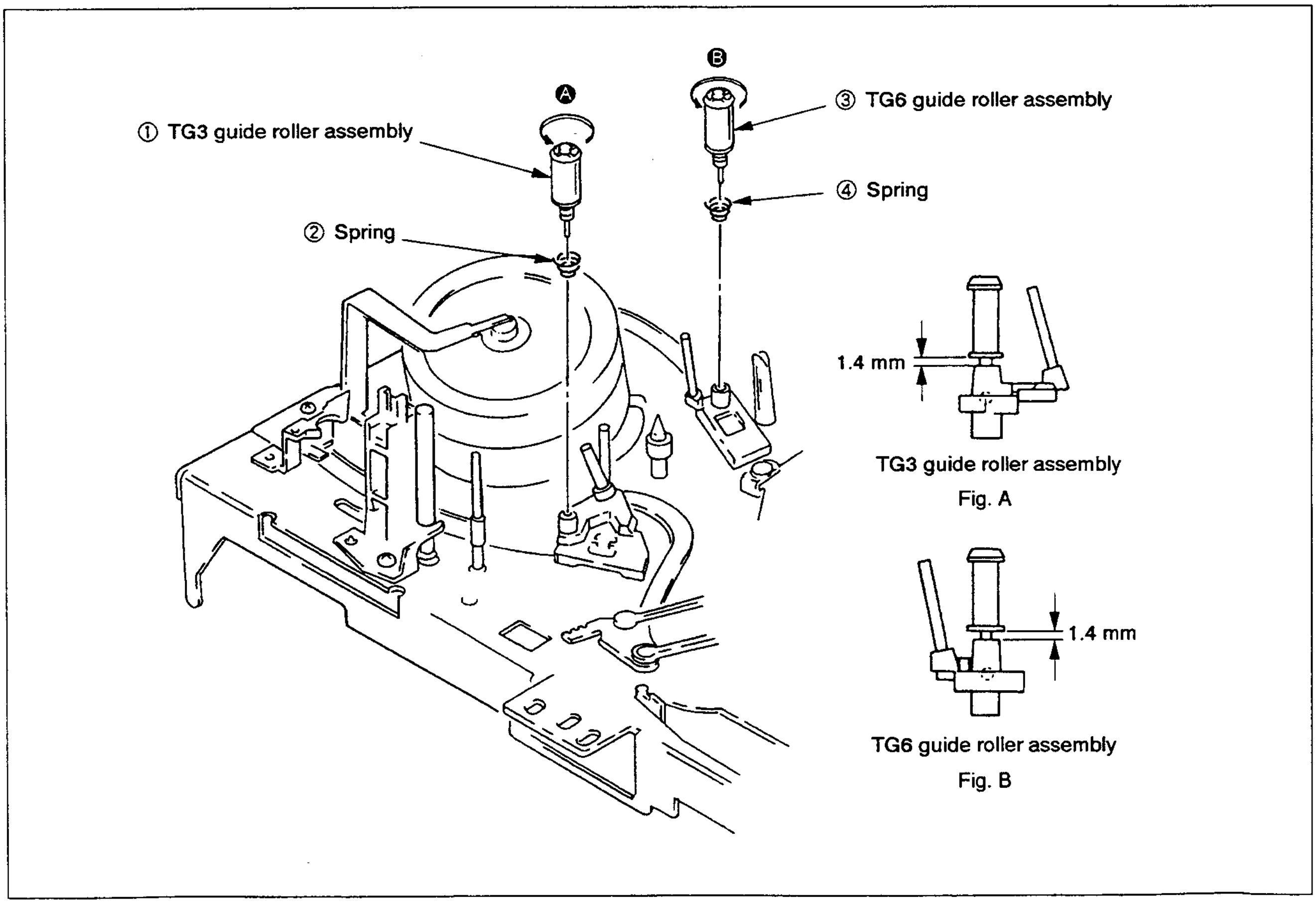
Ⓑ
Ⓐ
③ TG6 guide roller assembly
① TG3 guide roller assembly
④ Spring
② Spring
1.4 mm
TG3 guide roller assembly
Fig. A
1.4 mm
TG6 guide roller assembly
Fig. B

Fig. 3-8

2-4. TG8 ASSEMBLY (Refer to VHS Mechanical Adjustment Manual Ⅳ page 23)

- As the shape of TG8 assembly was changed, Section 3-13 is changed.

☛ : Chenged portion

3-13. TG8 ASSEMBLY (Fig. 3-15)

1) Remove TG7 tape retainer ① to pull out TG8 assembly ②.

[Note on Mounting]

- Apply FLOIL SG-055G (Jig Ref. No. J-12) to ☆ marked portion.
- Keep clean the surface contacts tape of TG8 assembly ②.
- Be careful not to change the shape of TG7 tape retainer ①.
- After attaching the TG7 tape retainer ①, check that side Ⓐ of ① is below side Ⓑ of the stepped-part of the TG7 shaft. (Fig. A)

[Adjustment after Mounting]

- 4-1. Tape path adjustment.

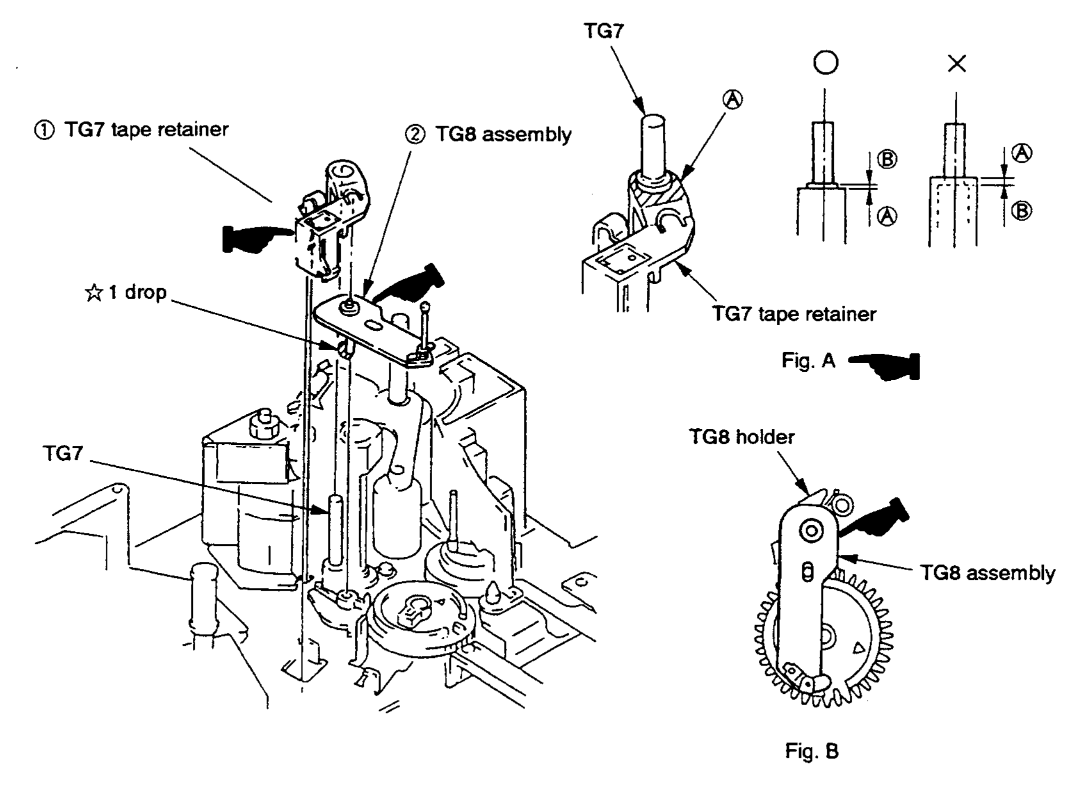
① TG7 tape retainer
② TG8 assembly
☆ 1 drop
TG7
TG7
Ⓐ
○
×
Ⓑ
Ⓐ
Ⓐ
Ⓑ
TG7 tape retainer
Fig. A
TG8 holder
TG8 assembly
Fig. B

Fig. 3-15

2-5. TENSION REGULATOR (TG1) POSITION/ TENSION ADJUSTMENT (Refer to VHS Mechanical Adjustment Manual IV page 35)

- As the tension regulator position and tension adjustment were changed, the tension adjustment and Fig. 4-1 are changed.

☛ : Changed portion

● Tension adjustment

Mode	Playback
Measuring instrument/tool	Torque cassette
Adjustment locations	Position for hooking the tension spring
Specified value	34 ± 4 g•cm ☛

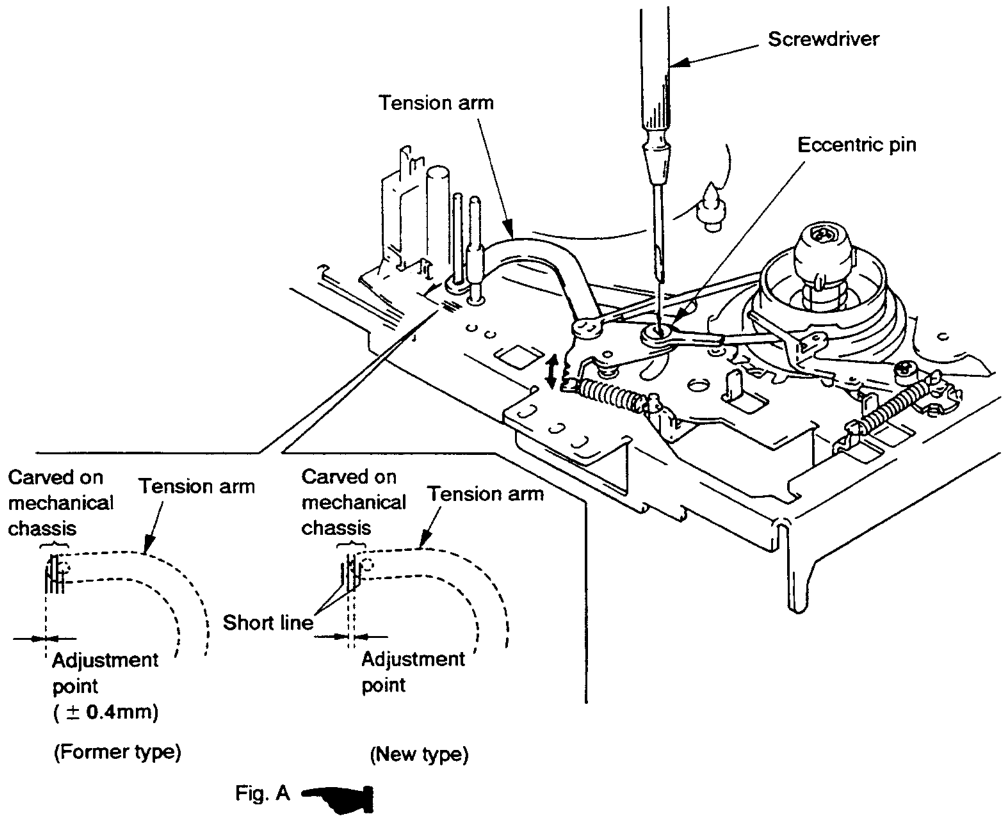
Screwdriver
Tension arm
Eccentric pin
Carved on mechanical chassis
Tension arm
Adjustment point
(± 0.4mm)
(Former type)
Carved on mechanical chassis
Tension arm
Short line
Adjustment point
(New type)
Fig. A ☛

Fig. 4-1

2-6. TG8 GUIDE ROLLER HEIGHT ADJUSTMENT (Refer to VHS Mechanical Adjustment Manual IV page 36)

- As the use of TG8 height adjusting screw was cancelled, section 4-1-2 is changed.

4-1-2. TG7 TAPE PATH ADJUSTMENT (Fig. 4-2)

[Adjustment Method]

1) Load a tape, and playback the tape in the CUE mode, confirm the distance between lower flange of No. 7 guide roller and lower side of tape (Fig. A).
2) Then, feeding the tape in the REV mode, confirm the distance between lower flange of No. 7 guide roller and lower side of tape.
3) If the tape height in the REV feed is higher that in the CUE playback (Fig. B), rotate the ACE head flapping adjust screw in the direction Ⓐ so that a difference in tape height between CUE mode and REV mode becomes zero.
4) If the tape height in the REV feed is lower that in the CUE playback (Fig. C), rotate the ACE head flapping adjust screw in the direction Ⓑ so that a difference in tape height between CUE mode and REV mode becomes zero.

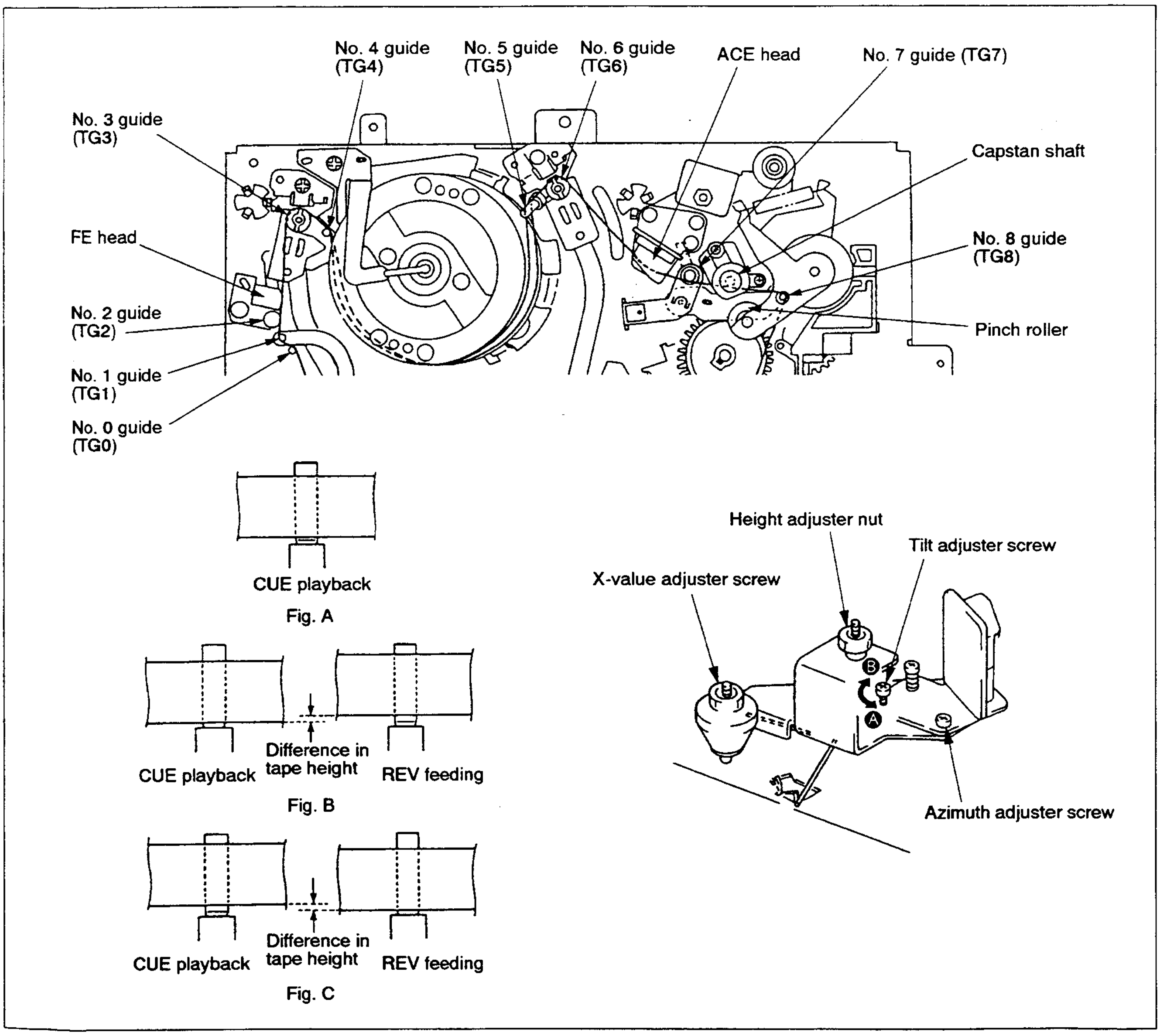
No. 4 guide (TG4)
No. 5 guide (TG5)
No. 6 guide (TG6)
ACE head
No. 7 guide (TG7)
No. 3 guide (TG3)
Capstan shaft
FE head
No. 8 guide (TG8)
No. 2 guide (TG2)
Pinch roller
No. 1 guide (TG1)
No. 0 guide (TG0)
CUE playback
Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Ⓑ
Ⓐ
Difference in tape height
CUE playback
REV feeding
Azimuth adjuster screw
Difference in tape height
CUE playback
REV feeding

Fig. A

Fig. B

Fig. C

Fig. 4-2

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